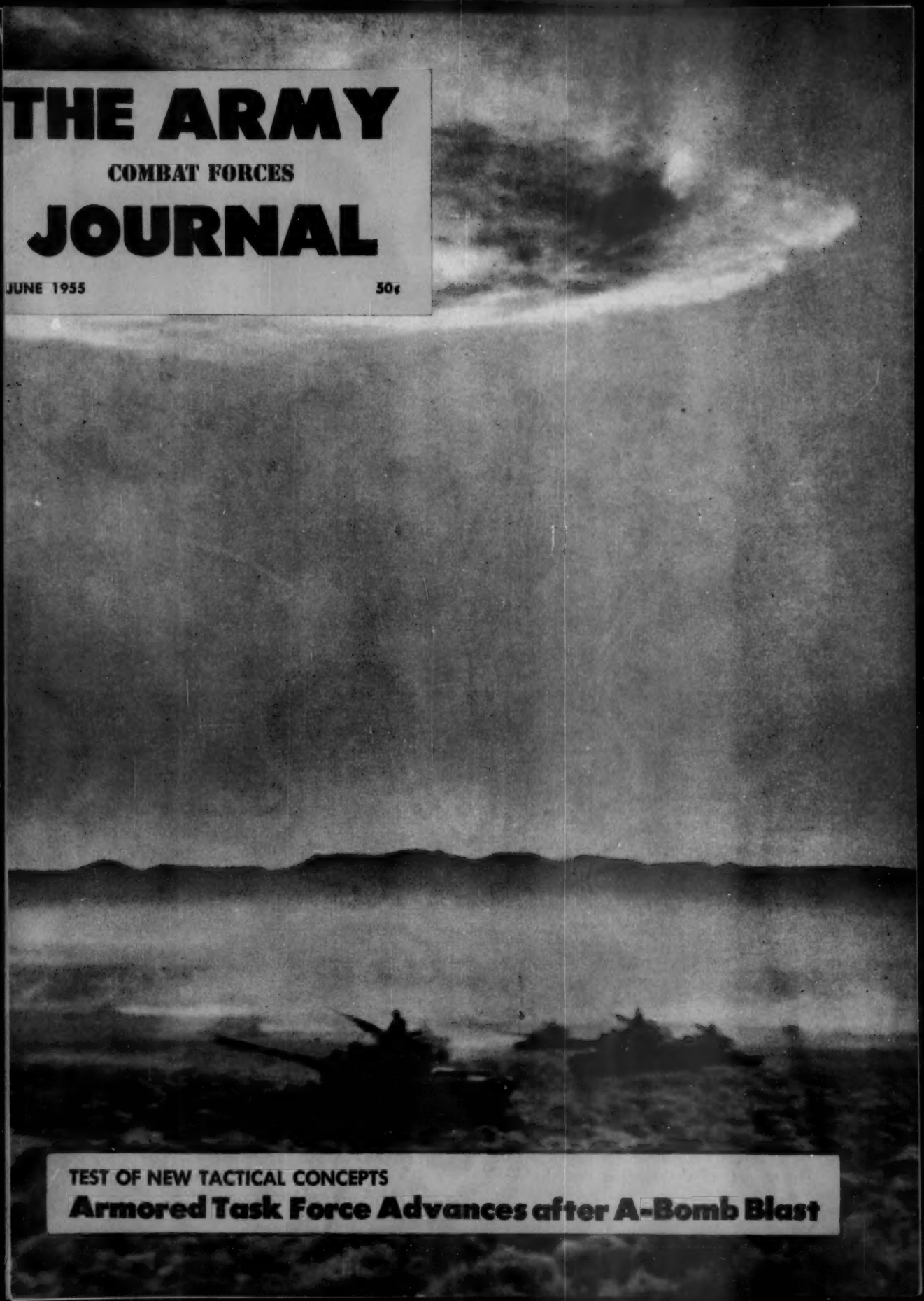
THE ARMY

COMBAT FORCES

JOURNAL

JUNE 1955 50¢



TEST OF NEW TACTICAL CONCEPTS

Armored Task Force Advances after A-Bomb Blast

Welcome News

The Regulars Are Reenlisting

MORE Regulars are reenlisting in the Army than at any time since the year the Korean conflict broke out. Department of the Army reports show that the reenlistment rate of Regulars during the last six months of 1954 rose from 22 to 54 per cent. In 1950 the rate was 59 per cent, but by 1953 it was plummeting and the rate for fiscal 1954 (July 1953-June 1954) averaged only 23.7 per cent. Then came a welcome reversal of the trend; a few months later the percentage began to climb back to near pre-Korean figures.

Here's what happened. In July, August, and September of 1954, 13,800 Regulars reenlisted without a break in their service. But in the following three months, 21,665 reenlisted immediately. This is an increase of 56 per cent. Also, more men who had previous service, but who were civilians, came back into the Army during the second three-month period than during the first.

WHY did this happen? What caused this encouraging reversal in the attitude of the men the Army needs most: the professional regulars, the noncommisioned officers and hard-to-replace specialists?

It wasn't due to hard times on the outside. Jobs are plentiful and the country was never more prosperous. Any man capable of performing as a noncommissioned officer in the Army could find a well-paying job in civilian life if he desired to leave the service.

The answer must lie within the conditions of service.

Without a doubt, bigger reenlistment bonuses played some part in this. So did the effort to stabilize assignments and to assure noncommissioned officers Stateside service of at least eighteen months after a tour of overseas service.

At this time Operation Gyroscope had not beer. announced, but soldiers generally knew from the statements of their leaders that the Army was working on plans that would give Regulars a better break and the expectancy of this doubtlessly led some to re-up.

Among other improvements were the adoption of a new uniform, the announced plan to separate noncommissioned officers and specialists (without degrading the latter), the individual assignment by name of first-three-graders, and slightly lower commissary prices (brought about by reducing overhead surcharges).

THERE was also the National Housing Act of 1954 which makes it possible for servicemen to become home owners just as their colleagues who have left the service.

More recently, there has been a raise in pay, which certainly provides an added incentive for Regulars to reenlist.

Lest this attractive picture suggest that Army life is now one long, perfect dream, it must be noted that the serviceman's family still is without guarantee of dependent medical care, that it must often live in substandard quarters or pay high rent for off-post housing, and live dangerously because of inadequate survivor benefits in the event of the death of the soldier-husband and -father.

THE housing problem remains acute at many posts and stations both in the U. S. and overseas. Many service families rightly deplore losing their entire quarters allowance when they live in substandard quarters on a post. They would welcome authorization to pay a lesser rental on such substandard quarters. However, the only lasting alleviation of the housing shortage is more Government housing adequate for growing families.

With such housing, with assurances of decent medical care and survivor benefits, stabilized assignments and the effort to restore the old esteem and respect for the valuable services of noncommissioned officers, the reenlistment rates of Regulars could well continue to improve to the benefit of the Army and the nation.

ON THE JOB . . .
. . . not "on the way"

Technician operating an aerosoloscope, or germ-counter, new Army Chemical Corps device for measuring germs, radioactive and other airborne particles.

This ingenious device will add immeasurably to both civilian and military safety in the event of germ warfare . . . but it is useless without a skilled technician on the job to operate it. That's one reason why specialists are flown from one important assignment to another, via the Scheduled Airlines — which get them there *five times faster* than slow surface travel.

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"The Association of the U. S. Army shall be an organization wherein all who are in accord with its objectives may join in the exchange of ideas and information on military matters, and in fostering, supporting, and advocating the legitimate and proper role of the Army of the United States and of all its elements, branches, and components in providing for and assuring the Nation's military security."

ASSOCIATION'S JOURNAL

THE ballots have been counted; the returns are in. General Lyman L. Lemnitzer is your Association's new President, to take office for one year at the June meeting of the Executive Council. General Lemnitzer has been President, of course, since General Decker left for Europe in February. Lt. Gen. Floyd L. Parks is our new Vice President.

Members of the 1958 panel of the Executive Council, elected during the balloting, were: Major Generals W. S. Lawton and G. C. Mudgett; Brigadier Generals Paul W. Caraway, Philip F. Lindeman, and William C. Westmoreland; Colonels Robert L. Cook, Walter F. Ellis, Harold G. Haskell and Alexander D. Surles; and Master Sergeant William O. Wooldridge.

Pictures of the new officers and members appear on page 30.

Congratulations all! The Association staff welcomes your advice and help in making the organization even more effective.

SINCE shortly after the end of World War II your Association's Book Service has been fighting to render the service our members deserve, without losing too much money in the process. Unfortunately, today's Army is not a reading army, and the Book Service's volume is so low that we have had an almost impossible fight to keep it in existence for the comparatively few members who appreciate a one-stop, money-saving method of acquiring books.

In Association business, as in the Army itself, paperwork is an expensive luxury. Operating charge accounts costs us too much, even though our collection rate is so high that ordinary commercial firms would drool if they knew how little we lost on bad debts. We have had to institute a new policy, effective 1 June 1955. The essential elements of the policy are these:

No charge accounts to individuals. Unless cash accompanies the order, the order will have to be returned, unfilled.

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No more Dividend Coupons. When you send your order in, deduct 10% of the list price, and there's your saving. If the book sells for $5.00, send a check for $4.50.

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And if you have any Dividend Coupons around the house or in your footlocker, *please* use them up before the end of 1955—or send them in and you can have a *cash* refund. It would help considerably to have all Dividend Coupons out of circulation before the end of the year.

AND BUY YOUR BOOKS FROM YOUR ASSOCIATION! You save money (10%) and your Association makes a little.

ARE you doing your part in the Association's present membership campaign? Tell your friends we appreciate their interest in reading THE ARMY COMBAT FORCES JOURNAL, but it's membership in the Association of the United States Army that pays the bills. The only way to guarantee a more useful and influential publication is to acquire more members. Talk it up! THE PUBLISHER

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The ARMY COMBAT FORCES JOURNAL is a professional military mag zine doveted to the dissemination of information and ideas relating to the military art and science representing the interests of the entire Army. The ARMY COMBAT FORCES JOURNAL strives to—

- **Advance man's knowledge of warfare in the fields of strategy, tactics, logistics, ope.ations, administration, weapons and weapons systems.**
- **Advance man's knowledge and understanding of the soldier as an individual, as a member of a trained unit, and as a member of the whole Army; emphasizing leadership, esprit, loyalty, and a high sense of duty.**
- **Disseminate knowledge of military history, especially articles that have application to current problems or foster tradition and create esprit.**
- **Explain the important and vital role of the United States Army in the Nation's defense and show that the Army is alert to the challenges of new weapons, machines, and methods.**
- **Advance the status of the soldier's profession.**

(Adopted by the Executive Council of the Association of the U. S. Army, 21 June 1954)

The ARMY COMBAT FORCES JOURNAL

June 1955 **Vol. 5, No. 11**

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Armored task force advances after A-Bomb Blast in Nevada. *Wide World photo.*

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THE MONTH'S MAIL

The Army Wives

● When in September I read your impressive articles, "The Army Yesterday," by Mrs. Craig, and "The Army Today," by Mrs. Rigg, I planned to write you to say how splendid I thought both articles were and how much I would like every Army wife to experience reading them. In the issues of The JOURNAL since that time I have looked in vain in "The Month's Mail" for letters congratulating you on their excellence.

I hope many other Army wives have been more articulate in expressing their interest in these articles than I. At least I have passed our copy to numerous friends to read. It has occurred to me that there would be great value in reprinting these articles in *The Reader's Digest*.

RUTH B. HOLLIS
(Mrs. R. P. Hollis)
2800 S. 20th St.,
Philadelphia 45, Pa.

● *Thank you, Mrs. Hollis. Our love and respect for Army wives is now back on its former high plateau. We'll admit it dipped a bit when a vast silence followed the publication of the articles by Mrs. Craig and Mrs. Rigg, but we are reassured not only by Mrs. Hollis's letter but by the knowledge that many an absent-minded Army husband is still carrying about a letter addressed to us, given to him for posting by his ever-loving.*

Direct Line for the JA

● In General Harris' fine paper on "The Theater Support Command" [COMBAT FORCES JOURNAL, May] charts 2, 3 and 4 show the Staff Judge Advocate layered several echelons under the Inspector General, Comptroller, Public Information Officer, Headquarters Commandant, and others who are given direct access to the Commanding General.

Such a depressed position for the legal eagle not only appears to violate the statutory command that "convening authorities shall at all times communicate directly with their staff judge advocates . . . in matters relating to the administration of military justice" (Article 6(b), Uniform Code of Military Justice), but, more important, it impairs the desirable close relationship between the CG and his JA. When several echelons of non-conductors are interposed between those two, trouble results. See, generally, the military justice mess of World War II, and the legislative straitjackets imposed on the services in consequence.

JUDGE WINTHROP

He's Now in the Count

● Regarding your statistical study on page 2 of the April issue: Please add one (1) manufacturers' representative (fancy title for traveling salesman) with three and a half years World War II service and three years USAR time, who is still interested in Army doings.

RICHARD H. POE
23 Seaton Road
Stamford, Conn.

Off-Duty Training Facilities

● One of the problems in training is finding time to teach the soldier the many subjects that would add color and interest to military life. Since our training day is crowded, I feel that the Army would do well to examine its off-duty facilities. By redesigning them we can provide a military atmosphere for the soldier to live in.

Most Army posts are well provided with off-duty activities. There are bowling alleys, theaters, swimming pools, gyms, craft shops, radio stations—in fact, any soldier can find his favorite avocation on the post. In spite of all these activities to entertain the soldier, few of them provide any training. One of the things that Army posts lack that all good amusement parks have is a shooting gallery. What a natural for ground soldiers! Just go to an amusement park and watch the uniformed servicemen blasting away.

The magazine rack caught my special attention. There were the run-of-the-mill magazines that feature everything from women's fashions to the racy little sex and sadism things. But nowhere on the rack was THE ARMY COMBAT FORCES JOURNAL or any of the branch magazines. Most military magazines seem expensive to the average soldier when he is asked to subscribe for a year at a time, but buying a magazine once a month doesn't seem half so bad. A look at the pocket-book shelf was nearly as impressive as the magazine rack. There was everything from Lincoln to Lonigan. The bookshelf needed copies of noncom textbooks for the new corporal, and some of the military classics and pamphlets for the interested reader.

Most of the military magazines can be read at the post library, but most soldiers will not go to the library to spend the few minutes before the movie. Most men do not go to the library without a special reason, and then many of them would not know what to look for. If the military publications cannot enter the market on the same basis as civilian publications, then the PX should be able to dispose of outdated military magazines in the same manner as they do soiled and damaged merchandise.

The average recruit enters the Army with the idea of doing the best job he can while he is in the service. They expect to live in an entirely different atmosphere. Instead of making him a "quasi-civilian," we should saturate his off-duty time with military recreation, thereby increasing his interest, his professional knowledge, and his value to the service.

LT. WILLIAM B. BOYLES
Hq Co, 33d Inf.
Fort Kobbé, C.Z.

● *We're prepared and anxious to supply a monthly stock of* JOURNALS *to any PX that will display them.*

Mental Mobility

● Any time a few articles move someone to write a letter to you, *that* is mental mobility. This letter is in tribute to Col. David P. Gibbs, who wrote "The Commander's Communications" [February] and "Mental Mobility" [March]. It is a pleasure to see such material from one of the same branch as myself.

The commander's confidence in the commo officer, bringing him in early on planning, keeping him informed, licensing him, are merely basic principles of positive leadership. The commo officer will be faithful to his trust. We are human; we have all had our failings. But success will be had only through teamwork to the *n*th degree; trust in others to get a job done effectively. The Buffalos (17th Infantry) in Korea were successful

through just such efforts. The head of the herd gave his commo officer great latitude. Communications were always there.

Communications were successful only because the commander allowed his company-grade commo officer to energize his ideas and because he always backed him up on *how* communications could and would be established. Mental mobility, faithful to our trust—call it what you may; success depends on dynamic and positive thinking.

CAPT. GEORGE A. NIGRO
OD, TSS
Fort Monmouth, N. J.

Air Defense Problems

● I read Colonel Thielen's "Guardian of Our Air Frontier," in the April issue, with considerable interest. Colonel Thielen has made a very penetrating analysis of the air-defense problem. Possibly the solution to many problems lies in his statement, "When the Air Force and the AAA can get along like the infantry-artillery team, many problems will disappear." At the risk of being ostracized by the Army, I should like to offer a solution: make the AAA part of the Air Force. There are many advantages to such a merger, but the biggest is that we would then have unity of command and a greater degree of simplicity plus economy of forces.

We have long followed the principle of placing our artillery under centralized control. Considering that interceptor aircraft and the surface-to-air missile are in reality two types of antiaircraft artillery having the same mission but different capabilities, should they too not be under centralized control? If that is true, then the AF should control Nike as well as the interceptors, since they already have primary responsibility for the air defense of the U. S. Another reason is that the weapons of AAA are technically more similar to AF weapons than to conventional Army weapons. The AAA computer and the AF bomb sight solve essentially the same problem. The more the AAA and the AF know about each other's capabilities and limitations, the better each can accomplish its mission. The AAA must rely on the AF now (for early warning, and so on) to accomplish its mission. If AAA were actually part of the AF, then AAA would not receive the same general treatment as the illegitimate child at the family reunion, which is usually what happens now when AAA representatives confer with either the AF or with the rest of the Army.

Some AAA officers are of the opinion that the SAM of the future will enable the army commander to gain air superiority over his army's area, even if we do not have tactical aircraft available. This might be fallacious reasoning; if we have air superiority we may not need the army-controlled missiles. If we do not have it, then no amount of missiles will help the situation very much. The enemy air force would merely start its own isolation of the battlefield, and we would soon lack the means to maintain large-scale operations. Actually, with our air superiority in World War II and in Korea, our AAA seldom fired *in the air-defense role*. The most important function of AAA in the theater of operations then would be to protect our air bases and to help our own aircraft maintain air superiority. Once the balance of air power shifts, then it continues to shift, and at an increasing rate. The most efficient means of protecting air bases would surely be under AF control.

There are, of course, many good reasons for keeping AAA under Army control. There do seem to be enough advantages to putting AAA under AF control to warrant its serious consideration, however.

CAPT. C. R. ABEL
AA&GMB, TAS
Fort Bliss, Tex.

● *This proposal is Captain Abel's and NOT the editor's. Those of our readers who want to set Captain Abel right should do it now as we will be able to publish only a limited number of comments and none containing blasphemy.*

Cooking with Gas

● Colonel T. N. Dupuy in cerebrating on "High Standards and Morale" [March] discussed the necessity for officers and noncoms to do some serious studying beyond what is required to get by in their daily duties. "Only a small percentage of Army officers read such professional service publications as THE ARMY COMBAT FORCES JOURNAL," he wrote correctly. Percentagewise, most of the members of the Association are general officers, which is not surprising. I would like to inform Colonel Dupuy that the membership is now on the increase. At least by one.

In the bar of the officers' club was a major wearing a 7th Infantry Division patch on his right shoulder. He was reading "Tomorrow's Battlefield," in the March issue. A captain wearing an 11th Airborne patch on his right moved up to the bar and occupied the stool on the major's left. After he ordered his beer his eyes rested on the article "General Gavin Says. . . ." "What's he saying?" "Have a look," answered the major. The captain did, and read the complete article. He asked, "May I have the magazine when you are through with it?" "I'm never through with it," the major replied. "Can you buy it at the PX?" "Sure, but you get it for nothing if you are a member of the Association." "What is the Association?" "Look on page 4. It will tell you what it is all about in sixty-seven words." [Page 2 of this issue.—ED.]

FAMOUS MILITARY MAXIMS:

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After a few minutes the captain exclaimed, "Say! One of the vice presidents is my old division commander." "Yeah," said the major, "mine too. And that isn't all. He's on his way over here now to take over this command. When he gets here he may be interested in knowing how many members of his command are also members of the Association of the U. S. Army. Now, if you will fill out this card that came with the magazine you may become eligible to vote. Best you send it air mail. While you're at it, make up a ballot as appears on page 63, follow instructions as appears on 62, and get it in by 20 April 1955." The major added, "Your former division commander is running for president of the Association."

MAJOR GEORGE E. BANIGAN
Hq AFFE 8th Army
APO 343, San Francisco, Calf.

SBC?

● I have just read Colonel Swift's Cerebration in the April issue, and regret deeply that I did not write the article, for I too am bitterly opposed to the faculty system of present-day training in RTCs.

It is my contention that a company commander, aided by four lieutenants, can train two hundred men who will be better qualified for combat duty than men trained under any faculty system that I have had the displeasure of seeing. Furthermore, the four lieutenants will be more capable of leading men in combat than will the lieutenant who has been solely a committee specialist.

Lieutenant Blank was the instructor in chemical warfare at Camp Normal for eighteen months before being shipped to Korea. The first time he moved his platoon forward in attack, he encountered enemy machine-gun fire. Chemical warfare instruction had left him unprepared for such an event. He froze. He thought wildly, "Why wasn't I an instructor in tactics?" and broke for cover. While running, his gas mask became entangled with his sniff kit; the mask strap twisted tightly around his neck and, in frenzy, he really pushed the panic button. Since they couldn't very well say, "Strangled by the committee," they called it "Killed in action."

Colonel Swift deserves a hearty congratulation on his article.

CAPT. ROBERT L. LYONS
Camp Tortuguero, P.R.

Basic Branch of WOs

● In reply to SFC Giarrantano's letter re warrant officers in your April issue, I'd like to give my answer to the questions, "Why can't the Army keep up with the times like other services? The cap and lapel brass and bars of the WO are strictly WO.... Why can't they wear the same brass as commissioned officers?"

To set the record straight, let's go back in time to the point before an air force, *per se*, existed. Then the Air Corps was an arm of the Army. Four or five years (give or take a month or two) before the Air Force came into being, the Army decided to pin the branch insignia on warrant officers, just as the officers wear such insignia. The resulting howl of indignation, in which I participated, apparently was heard in Washington. Not many moons later the WO's insignia again nestled securely on the collar and lapel.

Of course, the real reason that use of branch insignia for WOs was not considered practical can be seen by merely reading the history of a warrant officer, from 1941-42 to date. Even my own history for that period (except from 1948 to 1951, when I had temporarily reverted to master sergeant) might serve to illustrate why WOs should not wear branch insignia.

Assignments chronologically by branch: Infantry, Coast Artillery, Infantry, Engineers, Air Corps, Adjutant General, Infantry, Adjutant General. In these seven branch assignments, it may be further noted that various types of duty were performed on levels from company to army headquarters, including specialized headquarters such as the Assembly Area Command in Reims, and Headquarters, Exercise LONGHORN at Fort Hood, Texas.

As can be seen, a warrant officer would spend five-sixths of his service in a branch other than basic, if someone could determine the basic branch. Over such a period most commissioned officers attend service schools of their branch. Very few WOs take time out for service schools, since they usually obtain their training in an on-the-job status.

CWO A. E. O'BRIEN
218 Brettonwood Drive
San Antonio, Tex.

State Defense Forces

● The JOURNAL has been an essential part of my military education program for the past several years, and has steadily improved in value.

In view of needed emphasis on developing a reserve force adequate to meet future emergencies, those of us who labor to keep State Guard cadres on their toes would appreciate space and comment covering that important area of our military strength.

With some encouragement from the Army and a modest outlay for clothing and equipment we could develop a substantial support force capable of handling most local and state security missions at a fraction of the cost involved if such missions were assigned to Army units.

MAJOR WALTER M. FERRIS
Ohio Defense Corps
Cleveland, Ohio

Keep Our Banners High

General Ducrot
The Pentagon
Washington 25, D. C.

Dear Sir:

I hope you don't mind a junior officer, who served under you in peace and war, writing this personal note. What I shall write about is not in connection with my official duties, but is of grave concern to me as an officer of the United States Army.

I have just returned from the local post theater in which the movie, "An Annapolis Story," was shown. This film outlines the traditions of the Naval Academy and the principles expected of an officer. What disturbs me was the laughter of the soldier audience at those principles which are morally and religiously sound and right and for which we should all strive. This is not the first time I have observed such reaction to pictures in which loyalty, honesty, duty, and honor are brought out in connection with our officer academies. It makes me wonder why we rely on Hollywood pictures to inform our basic element—the individual soldier—of the principles so important to the individual, his unit, our Army, and our Nation.

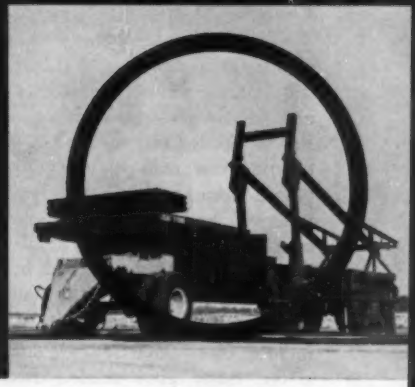
I am wondering if a series of true stories could not be put into pictorial form telling the stories of individuals from all walks of life—officer and enlisted—who have upheld our traditions. There are stories as good as any Hollywood effort in our Medal of Honor citations and in other citations for meritorious service. These pictures should clearly outline the tradition that the individual upheld and could relate the proud history of the unit in which the individual was serving.

I know that this subject is not new and that action in this direction was instituted when the distribution of "This is Your Army" was ordered. We must reach the key to our success—the individual soldier, be he enlisted or officer—with the ideals that have made our country great. We must keep our standards high.

Having had the privilege of serving in combat with my fellow American and under your leadership, I know you will understand the feeling behind this letter.

Respectfully,
LIEUTENANT DOE

tic 'tac' toe!



In the event of surprise attack, today's new and more powerful USAF Tactical Air Command can now carry war to the enemy anywhere in the world—around the clock and in any weather.

Here at a glance are some of the elements that might be used in such an attack and which are contributing to Tac Air's new mobility and striking power.

In modern warfare, major fixed bases are certain to become targets for initial enemy action. The Martin zero-length launcher makes possible swift mobility and advance-area operation of the TM-61 Matador tactical missile and—if need be—of piloted jet fighters.

In addition, new versions of U.S. Air Force's B-57 bomber, a major tactical weapon, are now being developed for service.

And for tomorrow's Tactical Air Command arsenal, new and more powerful Martin weapons systems are on the way.

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FRONT AND CENTER

O-Day plus 180 years. The U. S. Army's Organization Day comes on 15 June—the anniversary of the day General George Washington took command of the Colonials at Concord. We hope the bands play on that day and that the troops will pass proudly in review, their flags and banners rippling bravely. We hope, too, that there will be much partying—as is proper on any well conducted Organization Day—and that the beer will be cool and the fellowship warm. We hope that that there will be a minimum of speechifying. Perhaps little more than the reading of such moving history as this, taken from *Revolution in 1776* by John Hyde Preston:

"The fox-hunter from Virginia was coming to take command of his sprawling bucolic forces. He rode a white charger and glistened with regimentals. People flocked out to catch a glimpse of the great man in every town he passed through. Little girls gave him nosegays and white-haired ministers coupled his name with Divine Providence. He was embarrassed by it all and accepted it with a shy half-smile.

"When he arrived at the encampment at Cambridge he stood out under a big dusty elm, shaded from the scorching heat of the July sun, and made a short speech to the militiamen gathered there in motley uneven ranks. He asked them to have faith in the future of this country, to be patient under reverses and to believe that he would do all in his power to save them and make them happy. Legend says that he unsheathed his sword and waved it in a slow circle, like a bishop administering a benediction. There is nothing to prove it, and Washington was not the kind of man who goes in for mystic rites.

"The army that he found at Cambridge was saved from being ridiculous only by being so pathetic. At least, it was pathetic to military eyes, and Washington was trying to train those steely gray eyes of his to be as military as possible.

"But for practical purposes, this armed mob of farm hands and periwigged aristocrats was not pathetic at all. They had cleaned out the British at Lexington and Concord and at Bunker Hill with a kind of uncanny genius for the art of war. An artless art, in a way—like the skill of children or the luck of beginners. But it had worked miraculously."

Baseball. If you're in uniform and in New York City you can attend major league baseball games at the Polo Grounds, Yankee Stadium and Ebbetts Field (Brooklyn) free of charge. The three clubs have special servicemen's gates that must be used for free admission. For some of these clubs this is an old custom going back to World War I. If it exists in other major league parks Front and Center will pass the word along if properly informed.

Mr. Helicopter speaks. Dr. Igor Sikorsky, dean of helicopter designers, doesn't believe there is any limitation on helicopter size and that it "would be possible to produce giant helicopters as soon as they would be needed." In an address before the Institute of Mechanical Engineers in London, Dr. Sikorsky predicted that the future cargo helicopter will have no body compartment but will pick up its load through a hoist arrangement and carry it underneath. He thinks the single-rotor helicopter will remain the most important type and piston engines or turbines will be the usual source of power. Nuclear power is possible but poses special problems and may not be necessary in such a short-haul craft as the helicopter. He thinks 200 mph will be about the most economical top speed.

Convertiplanes are quite feasible, Dr. Sikorsky said, but he believes they have limited usefulness because they will be "considerably more expensive and less efficient than either the pure helicopter or the pure airplane of equal lifting capacity."

"Maintenance, life expectancy and reliability of helicopter transmissions . . . are all quite reasonable even at the present time," he said, taking a dim view of current criticism. He thinks the metal gear transmission will be used for a long time because hydraulic or pneumatic transmissions cannot "even approach the 96 to 97 per cent of efficiency currently reached in well-designed modern metal gear transmissions of helicopters."

Cargo aircraft needed. W. R. Rhoads, chief military operations research engineer for Lockheed Aircraft Corp., believes the nation's present air transport fleet is out of date and a whole new family of aircraft must be developed. He sees the need for three types of airplanes: (1) Vertical takeoff and landing craft that can carry up to 10 tons, for short hauls; (2) aircraft that can take off and land from short, hastily prepared runways and carry 25 tons at ranges up to 3,500 nautical miles; and (3) heavy duty cargo transports capable of carrying 100 tons for

'Constructive View'?

This "pro-Army" cartoon from *The Chicago Tribune* is fine stuff from our point of view and we are tickled to be able to print it. But it also serves as an example of the tough job Secretary Wilson and his information assistants are going to have in trying to keep service rivalry from getting into the press.

Into jet training—safe, slow-speed landings

Cessna T-37... Designed for Jet Training

Everytime the T-37 returns from a test flight in Wichita it is apparent that jet training is being made easier, safer. The reason: the new jet trainer has a slow landing speed, makes the move into jets relatively simple.

The shift from prop driven to turbojet airplanes is a big step, imposes stiff requirements on the men who train to fly with the USAF. To meet these, the Air Force designated CESSNA responsible for building an aircraft which would readily fit into the pilot training program. This, the T-37 is designed to do. Naturally, this means real savings in time and money.

* * *

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WICHITA, KANSAS

distances of 4,000 miles. Mr. Rhoads says that within the next ten years the nation must increase its air cargo fleet four or five times and reconcile the differences between military and civil requirements for cargo aircraft.

This is easy. We have a three word answer for the researchers from HUMRO who have been sent into the field to find out how soldiers think the Army should promote: fast and often.

Square feet per family. In recent years the government seems to have been trying to encourage servicemen to have smaller families. All recent appropriations for family housing have limited construction to a maximum of 1,250 square feet for all ranks and to an average of 1,080 square feet. But the Department of Defense, taking a more realistic view of the situation, has asked Congress not to write these limitations into the new bill for family housing and let the housing be built in accordance with the permanent law which provides a sliding scale ranging from 2,100 square feet for homes for general officers to 1,080 for the families of enlisted men.

New Look in Insignia

These are the noncommissioned officer and specialist insignia that will be worn after 1 July when the Army's new personnel management system goes into business. Along with new MOS numbers, there will be a new qualification record (Form 20), a new Service Record (Form 24), and a new method of keeping the 201 file.

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PRODUCING: Army H-23
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PIONEERING: New Flight Principles
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Watch Hiller pace the industry in new developments.

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PALO ALTO, CALIFORNIA

Eyes only. No patriot could possibly find fault with the President's recent comment that "I just don't believe it is justifiable for any Government official to release anything that applies to the secret war plans, war policies, war purposes and war equipment of this government." The difficulty is to keep what should be secret strictly segregated from what an official thinks would be helpful to him if kept secret but which isn't a secret. While contemplating this we happened upon an article in *The Saturday Review* by Mr. Jonathan Daniels, who was President Roosevelt's press secretary during the latter part of the war. In the magazine article, Mr. Daniels told a story that points up the difficulty:

"For a long time I saved a wartime message from General Eisenhower to General Marshall. It was marked 'Eyes Only,' which is a full echelon above 'Top Secret.' I kept it because my copy, though the message was only for the eyes of the Chief of Staff, was marked Copy No. 36. But if even more eyes had seen it the Germans would not have been greatly helped. Eisenhower was complaining about the number of VIPs who were arriving in the European Theatre."

Security of information. Front and Center can report that in the month or more that has elapsed since the President and Secretary Wilson decided that there were too many leaks in the Pentagon, this magazine has had no unusual difficulty or delay in clearing manuscripts for publication. In one instance, indeed, an article that appeared to the editors as being a bit questionable (on grounds other than security of information) went through the security review process much faster than is usual with similar articles. This magazine's experience thus far supports Mr. Wilson's statement that the new policy would work if the press would just be patient and give it time.

How to reduce. In losing 74,800 officers and men to get down to the required strength of 1,027,000 by the end of June 1956, the Army thinks it will lose 2 general officers, 750 field grade officers (while gaining 174 colonels), 6,048 company grade officers (gaining 2,837 first lieutenants), 1,000 master sergeants, 2,000 sergeants, 6,000 corporals and 60,000 privates first class and privates. This will bring officer strength down to 113,400 (from 120,200), and enlisted strength to 1,025,000 (from 1,101,800). The Army anticipates no change in the number of five- four- three- or two-star generals or warrant officers. It expects an increase of 200 in the number of cadets at the Military Academy.

35 million records. A new 12½ million dollar six-story building is nearing completion in St. Louis that will be used to house the records of 35 million ex-servicemen. It will be known as the Department of Defense Military Personnel Records Center. Army and Air Force records are already in St. Louis at the Army's Military Personnel Records Center. Navy and Marine Corps records will be moved from Garden City, New York, to the new Center when it is completed later this year.

SAFE!
ON ANY BASE
The high-winged C-123 Assault Transport is a perfect teammate to the twin-boomed C-119 Flying Boxcar.
Especially designed for safe, swift air-landing or para-dropping of men and material at advanced bases, the C-123 brings new mobility to tactical air support under any conditions of climate or terrain.
Powered by Pratt and Whitney engines, this new assault transport is rugged and versatile. More than 22,000 pounds of howitzers or motorized equipment, 60 airborne troops with full field equipment, can be landed on improvised runways or dropped at front line positions — 50 litter cases can be evacuated from combat areas.
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Enlist to fly in the U. S. Air Force
"the future is measured in light-years"

THE MONTH'S AUTHORS

IN the April 1955 issue of *Military Affairs*, publication of the American Military Institute, its president, Rear Admiral John D. Hayes, U. S. Navy retired, asks why "the U. S. military profession today [is] unable to produce writers?" He is alarmed because as he sees it, the "American military profession, now at its peak and holding the destiny of the world in its hands, is unable to know itself except through foreign pens." We expect to say more about this next month when we review a new book, *U. S. Military Doctrine*, by Brig. Gen. Dale O. Smith, USAF. But right here we'd like to call Adm. Hayes' attention to the fact that the U. S. Army has officers who are able to write intelligently and meaningfully about current history. And in evidence of this we present Major Lamar M. Prosser, Armor, who successfully undertakes the difficult task of analyzing "The Bloody Lessons of Indochina" (page 22).

Major Prosser enlisted in the Army in 1939 and won his commission three years later. His knowledge of Indochina stems from an assignment with MAAG in Saigon. He returned to the United States a few months ago and is now on duty with the 4th Armored Division at Fort Hood. He is the author of "Put 'em on Tracks," which appeared in the Journal of April 1953.

A couple of sentences of the letter that accompanied Major Prosser's article are worth quoting: "I am sending you this manuscript reluctantly. After a year in Indochina, having travelled pretty extensively throughout the country and discussed operations with literally thousands of French and Vietnamese officers of all ranks on all levels, I think I am beginning to understand what went on here. . . . I have never run into a more complicated politico-military situation and, of course, no matter how objective you try to be, it is inevitable that personal opinion and even perhaps prejudices are going to affect what you write. I believe this piece presents fairly well the majority opinion, at least among the U. S. military people there.

"I think you will be surprised to find me advocating fewer vehicles and an infantry capable of using its legs and the lightest possible equipment. I was forced to that view by the terrain, the enemy, and the evidence. . . ."

Colonel William C. Hall, Corps of Engineers ("Statistics for Commanders," page 11), is a 1931 graduate of the Military Academy who is presently on duty at Fort Meade, Md. His "A Medal for Horatius," which appeared in our January issue, received favorable comment in the civilian press. He has been an occasional contributor for many years.

THE editors of this magazine reject far more articles than we accept and we imagine some of our most persistent contributors have more rejection letters than check stubs. One exception that comes to mind is Major Robert A. Scruton, Infantry (page 18). We can't recall ever sending Major Scruton a rejection letter. He didn't contribute often but when he did it was almost surely a bell-ringer. We mention this now because we have just learned that Major Scruton has retired after twenty-six years of service as an enlisted man and officer. In addition to being a successful contributor of articles with a light touch, Major Scruton has been a standout tennis player for many years. We are told that he began his tennis career by being the junior half of a father-son tennis team that won the Fort Benning doubles championship in 1929. During military service that took him from Fort Eustis, Virginia, to Panama, Hawaii, Texas, Germany, Japan, and back to Fort Benning, he won such tournaments as the Hawaiian Open, Central American Open, Panama Canal, Eighth Army, Hawaiian Department, and All-Japan. We hereby nominate him for at least honorable mention in our informal military services' writing sweepstakes.

Lieutenant Colonel Anthony Leviero, USAR (inactive) ("Task Force Razor Shaves Big Apple," page 38), is a veteran newspaperman and Pentagon correspondent for *The New York Times*, an assignment he undertook several months ago after covering other Washington beats for his newspaper. During that time he has beaten his competitors on a number of good stories, all unclassified and, we are confident, "constructive" by Mr. Wilson's standards. Mr. Leviero began his military career in 1923 in Brooklyn as a member of the 106th Infantry, New York National Guard. In 1935 he transferred from the National Guard to the Organized Reserve Corps and in 1941 he was called to active duty. Assigned to G2, he spent the war compiling those immensely valuable tactical, technical and organizational facts about the Japanese and German armies that were issued in several "Handbooks" and in the regularly distributed "Tactical and Technical Trends." He returned to civilian life in 1945, and in 1948, failing to pass a physical he lost his standing in the active reserve. Mr. Leviero made the march from Camp Irwin to Yucca Flat with Task Force Razor and stuck out the many days of frustration when the shot was delayed by weather. He came through the experience in good shape except for a slight cold and we suggest that the doctors might take another look at him with a view to getting him back into the active reserve.

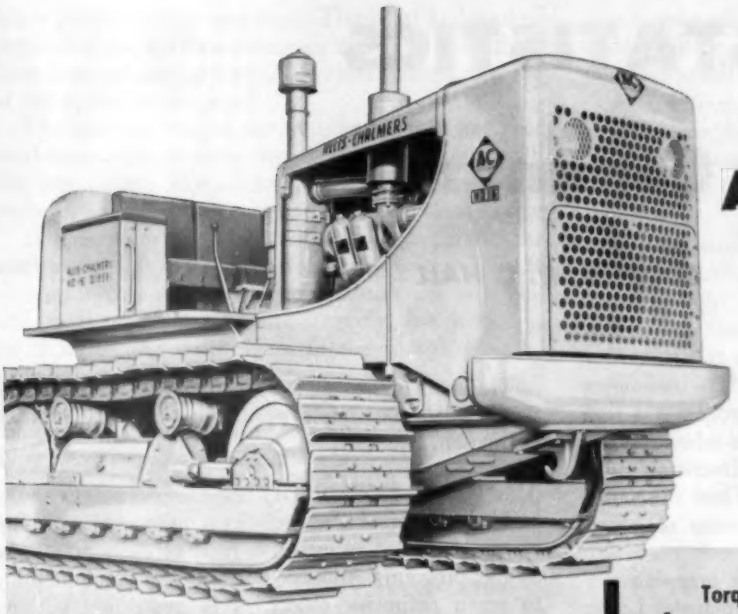
Lieutenant Colonel James W. Edwards, Infantry ("Web Defense," page 31), enlisted in the Army in 1929 and became a lieutenant in the National Guard in 1935. He was integrated into the Regular Army in 1945. Colonel Edwards holds a degree in law from Jefferson University.

Lieutenant Charles L. Snyder, Infantry ("The Sergeants Take Over," page 19), is currently serving as Chief, Press Division of the Public Information Office, at Fort Carson, Colorado. He saw combat in Europe during World War II and in Korea.

Lieutenant Colonel Dean E. Painter, Artillery ("It's an Artillery Weapon Now," page 48), holds a degree in agriculture from Oregon State College. He received a commission in the Regular Army in 1939. Colonel Painter is presently assigned to the Department of Gunnery, The Artillery School.

Lieutenant Colonel Frank G. Forrest, General Staff ("Helicopter or

(Continued on page 54)



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All in all, the new Allis-Chalmers HD-16 brings you an outstanding combination of performance and long life with both mounted and drawn equipment . . . a higher rate of production, more working time, more work done on military and civilian jobs.

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STATISTICS for Commanders

COLONEL W. C. HALL

I WAS caught with my charts down! The new army G2 was being briefed by his comptroller at a staff meeting in the Pentagon. Almost too relaxed, I listened as the usual tables and charts illustrating functions and operations were presented. Then the comptroller produced something new—a series of charts showing problem areas.

Most of them concerned the Army's mapping program. For example, "the production of maps of Lower Saxony [the name has been changed to protect the innocent] was only one per cent as against three per cent in the previous quarter," and "The production of plastic relief maps is only *half* in square miles of the production of the previous quarter."

The G2 demanded, "Who's responsible for the mapping program?"

I was.

Immediately after the briefing, I was called on for an explanation. Fortunately, I had the pertinent facts marshalled. We had recently completed negotiations with the Saxons to obtain maps to our specifications from their production. We were obtaining the maps on schedule at a saving of almost a million dollars—but the chart showed *production* and did not include acquisition.

In the production of plastic relief maps, we had shifted some production from small scale (1:1,000,000) to large scale (1:50,000). Since it requires 400 large-scale panels to cover the same area as a 1:1,000,000 sheet, it is no wonder that the production *in square miles* dropped.

Where had the figures come from? The army comptroller had taken them from a periodic report from the Office of the Chief of Engineers. The figures were correct. But, as I have noted, the conclusions of the G2 comptroller were in error.

We live in a world of reports and statistics. Like our G2, the commander and his staff officers see many of them. Which are significant, which point out the need for corrective action?

The operator (the officer in charge of the statistics-producing action) is frequently on the spot. Why are his unit costs higher than those of the same operation at another station?

The operator invariably has an explanation. Is it a valid reason or an alibi?

This article gives some background on statistics, and points out some simple steps that will assist in their evaluation.

The Need for Better Statistics

The requirement for statistics is quite apparent. Unit costs are needed to establish costs of elements of the budget programs. Allocation of funds and programming to reach definitive objectives is impossible without work measurement and cost data. Evaluation of performance usually depends upon cost or workload figures.

UNFORTUNATELY, we do not have, in general, good data for our purposes. For broad budget purposes we have much useful information, but the more we get into detailed programs and operations, the less likely are we to find satisfactory data.

The statisticians have far too often used data which represented a small fraction of an operation or which, while they covered an entire operation, did not produce

Inexact or misleading statistics (of which the

a fair picture of that operation. The heart and soul of statistics is the work-measurement unit. Too often these have been selected arbitrarily, without adequate study of the operation measured.

The operators are, in part, responsible for some poor work-measurement units by failing to cooperate with the statisticians. We all have a natural resistance to an investigator probing into our work—too often.

The need for good basic data being apparent, the commander has two coordinate responsibilities: first, to determine that the statistician produces the best possible work-measurement units; secondly, that the people he is measuring cooperate with the statisticians and insure that assumptions are correct and that technical considerations are properly considered. This coordination will at times resemble a shotgun marriage between an eager beaver and a stubborn mule.

Development of Statistical Data

So far we've discussed statistical data very generally; now let us take up a specific case.

For budget, programming, and performance analysis purposes, the Corps of Engineers has a requirement for electrical consumption standards. To establish electrical targets at each post requires consideration of a number of factors: maximum post capacity, current post population, safety and security lighting requirements, and operation of electrical machinery.

If a post, such as Fort Meade, has a population of 25,000 and this is the capacity of the post, there will be a basic unit need and consequent total utilization of electrical current. This use consists of all structure lighting and heating, operation of utilities and electrical plant, and safety and security lighting. If the population is reduced, say to 15,000, the barracks use of electricity will be reduced almost proportionably, but the other uses will be reduced to a much smaller degree.

Also, in our usage we must provide for the several thousand employees working on but living off the post. It has been found satisfactory to consider each of them as using one third as much electrical current as an inhabitant.

We can work up a target figure based on so many kilowatt hours per month per inhabitant, off-post worker, street light, motor, air-conditioning unit, and so on.

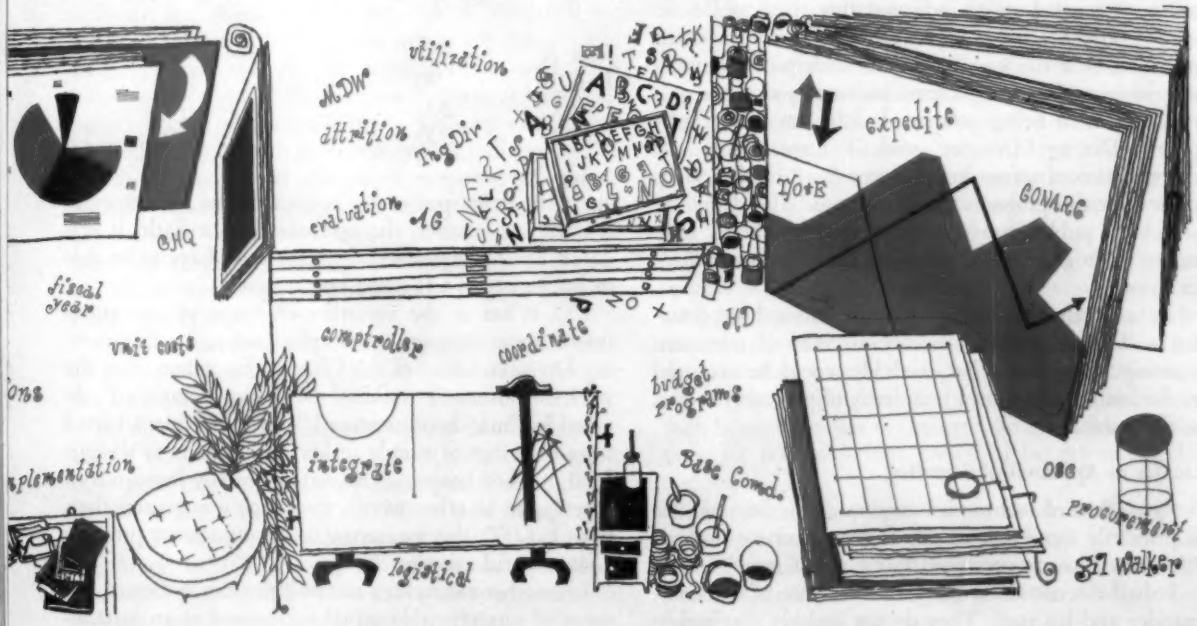
The engineers have used experience data for all requirements at full occupancy to determine basic electrical load and have developed a graph to determine the over-all requirement at greater or less than full occupancy. For example, a fifty per cent occupancy requires about seventy-five per cent as much electrical energy as full occupancy.

So far we've determined *amount* of electrical consumption, but what we need to find out is the *cost*. Now we arrive at further complications. Electrical costs are divided into two parts: consumption charge, and demand charge. The latter cost is due to the fact that the electric company must have enough equipment available and operable to meet our *maximum* needs. The greater our demand, the greater the electric company's capital investment. Both demand and consumption are metered charges. At Fort Meade, currently, the demand charge runs about thirty per cent of the total cost.

One more complication: the basic cost of electricity varies from one area to another.

I believe that finding the electrical consumption

re too many) make the world of figures in which he must work a maze to the commander



target in dollars for a post such as Fort Meade is more difficult than most of our statistical problems. In this instance, targets have been established and accepted to an accuracy such that an overrun of one or two per cent is considered significant by the post engineer and the army engineer. However, the problem must be kept under study at all levels since there is a continuous increase in over-all and *per capita* electrical consumption—some of it by labor-saving equipment (which cuts manpower requirements while adding to the electrical load).

Significant Measuring Units

I do not intend to overemphasize the use of experience data. Conditions in the army change frequently and radically. Experience figures invariably require comparison of past and present factors in order to check their validity.

Analysis of an operation will frequently point out significant factors. A number of years ago an Inspector General officer was ordered to locate baffling losses in a post commissary. As a result of previous experience, his first act was to check the purchases of beef. When he found that these purchases indicated a *per capita* consumption of twice the Army average, he checked transactions in this item and quickly located the cause of the loss—a commissary clerk who was selling quarters of beef on the side. Such *per capita* figures can be used to point out over-stockage and waste as well as theft.

Some significant indicators may be indirect effects. For example, a midwestern city's water consumption had for years followed a smooth curve—with an early evening peak which dropped off gradually to a low after midnight.

Recently, unusual demands put small peaks in this curve. A careful study indicated that these peaks occurred on the quarter hour. This clue led to a determination that the cause was the widespread viewing of television. Washing dishes, bathing, and other uses of water were being postponed until the end of programs. During "Dragnet" and "I Love Lucy," the consumption of water dropped way down, with a sharp peak after the program was completed. The degree to which the public "holds its water" may be a better indication of program popularity than the so-called scientific ratings.

As with other statistics, the simple method has drawbacks. We may obtain readily an over-all television viewing rating but other methods would be required to determine the relative popularity of programs shown at the same time.

Guides to Appraisal of Statistics

Regardless of techniques employed, the commander is primarily interested in the answer to one question: "Are the statistics presented to me significant?"

I shall discuss seven guides for the use of the commander and his staff. They do not include any highly technical or mathematical analyses. Such detailed analyses will, in most instances, provide additional bases for evaluation. The guides are presented as general questions with explanatory examples.

(1) *Is the over-all conclusion reasonable?* Does it agree with other related reports? I recently saw a report consisting of seventeen graphs or charts on certain logistical operations. One comment was favorable; sixteen were unfavorable. Since this field has been inspected by a number of qualified inspectors and elements rated excellent or superior, the predominance of unfavorable remarks at once cast doubt on the reasonableness of the report.

I remember seeing a six-page report written after a three-hour visit to an installation. The length of the report was unreasonable for such a short visit, and investigation showed that the report was padded with data from other reports three to twelve months old.

(2) *Do the listed figures make sense among themselves?* Recently I studied an army's reports on quartermaster operations at post level of the two allied operations "supply administration and stock control" and "stock receipt, storage, and issue." These two operations are supervised, at each post, by the same officer, and are subject, generally, to the same conditions of funding, manning levels, and operational environment.

The division of line items processed divided by man-hours produced figures given as "percentage of efficiency." Efficiencies at posts varied from 50 per cent to 500 per cent. Some posts were rated as being *ten* times as efficient as others in the same command. Such a relative rating is not reasonable.

In addition, the following situation prevailed:

	Supply Administration and Stock Control	*Stock Receipt, Storage, and Issue*
	%	%
Post A	50	300
Post B	90	500
Post C	200	70
Post D	300	60

At the *same posts,* one operation was five times as efficient; at another, the operation was a sixth! It was Mark Twain who noted that you don't have to be able to lay an egg to tell when one is rotten.

(3) *What is the variation or range of operations rated?* Some time ago, it was proposed to the Engineering Division, Office of the Chief of Engineers, that the work-measurement standard be "plans completed" divided by "man-hours required." Since our plans varied from drawings of simple utility attachments to designs for 1,000-bed hospitals (requiring literally hundreds of sheets), or, in other words, the range was greater than from 1:1,000, this measuring unit would never produce a meaningful average.

In another example, a recent inventory indicated the value of unserviceable signal equipment at an installa-

tion had more than doubled during one quarter. This was found to be due to the extremely high value of a few pieces of radar equipment awaiting spare parts.

The inventory was in dollars. If it had been in *pieces* of equipment, the picture would have been quite different. The repair of a few flashlights might have offset the deadlined radar sets. Neither dollar value nor item count will give, without further consideration, a true picture of the deadline condition.

(4) *How many units are measured?* Are enough samples taken to show a condition or trend? Let us assume that Fort Knox has a thousand tanks. There should be sufficient tanks repaired each month to give reasonable statistics as to average man-hours and costs. A small post repairing two or three tanks a month might prove to be much more or less efficient using the same yardstick. Also, efficiency might be expected to jump from very good to very bad. It is generally true that the smaller the sample, the greater will be the variation from the average.

(5) *Have all the elements of the operation rated been considered?* A sound comparison of depot "stock receipt, storage, and issue" gives a rating on a fraction of the operations of a depot and may or may not indicate relative over-all depot efficiency.

The example of the maps of Lower Saxony applies here. Maps produced plus maps acquired gives the true status of progress.

If we are measuring "map production," we cannot take one of many programs, such as that for Lower Saxony, but the entire world-wide program (if this year's budget is only slightly less than last year's, there should not be a substantial drop in production), or an entire plant such as the Army Map Service (the same number of employees should produce a consistent number of maps).

If we use miles traveled per vehicle assigned, we measure vehicle utilization, but unless we consider the traffic pattern—that is, the normal routes and their length—we cannot fairly compare stations. A large, dispersed station will require more vehicles and longer hauls than a compact industrial-type installation.

(6) *Are combined operations properly integrated?* In some reports on equipment, inspections and repairs are included in the same report. If the average repair takes ten times as long as the average inspection, the periods devoted largely to inspections will show a highly efficient operation.

In this instance, crediting an inspection as one tenth of a repair job would give a more reasonable basis for work measurement.

In the Army's mapping program, we noted that the cost of map revisions averaged about a fifth of the cost of original mapping and simplified some of our statistics by converting revisions to equivalent new mapping.

(7) *Are experience factors employed?* There are, in the Army, usually elements affecting operations which cannot be measured. In identical outdoor operations in different areas, weather will have an effect.

In an indoor operation—say, a laundry—one area may have a very stable work force, while another may be cursed with a rapid turnover. One laundry may employ old equipment while another may have the latest devised. And speaking of laundries, the relative hardness of the water available at each location will affect costs.

One method of considering variations such as weather, equipment efficiency, and hardness of water is to employ an experience factor. If a series of inspections evaluates two operations as being of equal efficiency, we may establish a factor to give equal ratings over this period and use this same factor so long as there is no appreciable change in the conditions considered.

On a golf course, par is established as 3, 4, 5 and, occasionally, 6. We expect to use more strokes on the longer holes! It is possible to take average scores and set up par for rifle courses. I remember that, in one company, we worked on the basis that a 38/50 for off-hand and a 45/50 for 500 yards prone were par for making expert. Similar scores were established for all ranges for marksman, sharpshooter, and expert. The fact that a score of 30 off-hand was all that was required to make marksman was useful to the coach and psychologically helpful to the recruit.

A GOOD statistical report should meet the seven criteria listed above. A further mathematical and technical analysis to establish the variation to be expected is helpful. Water, sewage, and electrical-consumption targets for a post can be established very accurately (within one or two per cent), but try (as once I saw proposed) to schedule *snow-removal* costs. Maybe it can be worked out in Alaska, but in Maryland we haven't located a good enough almanac to predict snowfall by months or quarters. We should not expect, at Fort Meade, to estimate any closer than within thirty per cent for snow removal costs for a quarter. However, such information might be of value in determining the types and quantities of equipment to be purchased. (Once again, a complication. The most efficient snow removal, moneywise, would use a minimum of personnel and equipment, but such a solution would probably handicap post operations for an unreasonable time and be entirely unacceptable.)

Eventually, we'll come up with good data on our operations for integrated use in budgeting, programming, and performance analysis. But in the protracted interim, the commander must determine whether particular statistics establish facts, provide indications, or are largely meaningless. If the statistics are indicative, then he must be able to evaluate the inevitable explanations for poor showings presented by the responsible operator.

The slide rule army is at least as far away as push-button warfare, and there will be for a long time a requirement for technical background, widespread experience, and sound judgment in the evaluation of statistical analyses.

How to Get Lasting Peace

When everything is Staff, nothing Line, war will be impossible

MAJOR ROBERT A. SCRUTON

A VISIT to any headquarters will quickly impress the observer with the atmosphere of harassment in which staffs are compelled to work. This is due to the inadequacy of their numbers to efficiently plan, direct, supervise and administer the activities of the units under them. Often it appears that the numerical strength of these units is equal to that of the supervisory staff. There are cases where it is actually greater.

This clearly calls for a substantial increase of all staffs in order that they may properly carry out their duties.

Staff expansion will rightly increase paper work. But there is today too little paper employed in conducting the Army's business. Too many affairs are settled verbally with no record for the file. Staffs must commit themselves to writing in all that they do and everyone in their sphere of operations must be on the distribution list. Understrength staffs cannot do this, although they do well, considering.

Additional paper will require more typists. A large corps of well-trained typists must be our immediate objective. There is the case of a staff section which employed nine typists who went on a picnic. They caught ptomaine and were laid up for a week. That section, unable to publish anything, became helpless. The units supervised by this staff received only verbal guidance and were themselves almost helpless. A reserve of typists would have prevented this situation.

WE have always been niggardly in regard to our staffs. In combat, replacements are assigned to line units when vacancies exist on staffs. Replacements have been ordered to the front while exhausted staffs worked night and day. Celebrated artists and athletes have been routed to rifle companies as Special Services staffs carried on with second-string talent. Troop Information & Education staffs—an activity whose endeavors are said to be unappreciated—have watched helplessly while degree-holders in education were rostered solemnly to infantry regiments. In peacetime we make fewer mistakes of this nature, but even so, officers and men continue to be assigned to line organizations.

In effecting our staff augmentation program we must simultaneously change certain basic beliefs concerning staff assignments. One of these beliefs is that the achievement of high rank depends on a liberal amount of command duty. Another is that too many staff assignments will deny a man's wife the opportunity to pin on his star.

There is sufficient truth in this to trouble all good staff men. Therefore they make great efforts to command something—a battalion, a regiment. Often they succeed, only to find themselves supervised by the very staff they deserted. It is the Army's loss, for trained desk soldiers, wisely prolific in the ways of paper, chartmongering and office management, provide the guidance for our defense effort. The more guidance we have, it is said, the better we are guided. Only the militarily unsophisticated can deny this.

CONSEQUENTLY we must provide unlimited advancement opportunity to members of staffs. TO&Es and TDs, staffwise, must be expanded elastically in order that the periodic campaigns for reduction in force (RIF) will have little effect on the large number of personnel who will choose a staff career when this program is promulgated. Only in this way can we forge the Ultimate Weapon.

"But what," questioned a staff officer whom I interviewed while researching this article, "but what do you mean by 'The Ultimate Weapon'?"

"Just that," I told him. "The Ultimate Weapon. Like the H-Bomb—you can't fight against it."

He put down a sheaf of reports. "But if we buy your proposal—not that we don't like the idea," he said, "will we have anyone left to do the fighting?"

"Not many," I said.

He seemed uncertain. "But . . . but . . ." he said, giving me an odd look.

"It's like this," I lectured him. "If the world's military forces adopt this staff concept, it will operate to eliminate war. Everything will be Staff, nothing Line. Staffs don't fight—they write. Therefore staffs will become the Ultimate Weapon, against which it is impossible to fight. . . ."

He ran screaming in the direction of his staff section.

THE SERGEANTS TAKE OVER

SFC William Medina points out a minor correction to a basic trainee of his unit during an M1 sighting exercise

Noncoms at this basic-training camp give instruction to the men in their own units. The result: better guidance for trainees, more prestige and responsibility for NCOs

Lieutenant Charles L. Snyder

SINCE World War II, the "committee" system has been used almost exclusively for teaching trainees the basic combat skills. Committees of instructors are organized on battalion, regimental and division level, each being responsible for some particular phase of training for the entire unit.

Though this method of training often achieves a high degree of technical excellence, it has some weaknesses. Junior officers and senior NCOs teach the same subject for months at a time, and are likely to become deficient in other skills and bored by repeating one subject over and over. Many NCOs are used for little but to shepherd their charges from committee to committee.

One consequence of this is a lack of leadership by noncommissioned officers while they themselves complain that they no longer have any authority. The 8th Infantry Division at Fort Carson, Colorado, has instituted a system of training that tries to overcome these deficiencies.

Last November, the 8th Division, which had been a general reserve division since the previous winter, received orders to prepare for the reception and training of more than 20,000 basic combat and individual advanced trainees

Cpl. Farrell Snider shows recruits how to stack arms

These recruits of the 8th Infantry Division learn how to use the bayonet from one of the noncommissioned officers of their own company, Sgt. Robert Stak

Close personal contact with the instructor means high morale and a keen sense of competition between units

Leadership and instruction are twin responsibilities for NCOs at Fort Carson, Colo. Cpl. Clifford Marshall shows his men how to operate a field telephone

during the first half of 1955. The planning which began with that warning order has resulted in a type of training which, while not unique, is a departure from the replacement training methods that have been used almost exclusively since the early days of World War II.

The division's new training program stresses decentralization. With the exception of a few technical subjects such as CBR, squad leaders have ultimate responsibility for the results of their squads. An average class begins with a short explanation and demonstration by one of the company officers or a representative of one of the technical services. The class is then broken down into squads, each of which receives the remainder of the instruction *from its own squad leader.*

Under this system, NCOs supervise everything their men do from reveille to retreat. Often they supplement their instruction in informal "bull sessions" in the barracks after duty hours. Since the trainees receive 90 per cent of their training from the same instructor, they are constantly reviewing what they have been taught. The results are increased enthusiasm and efficiency, and a highly competitive spirit among the squads.

An example of the results of this individualized training came when Companies A, B, and D of the 28th Infantry regiment completed their record firing on Fort Carson's known-distance ranges. Competitive spirit between squads was unusually high and, despite adverse weather conditions, the three companies qualified an average of 80 per cent of their men. This compares most favorably with the percentage of qualification in other installations in the Fifth Army area that are engaged in the same type of training.

THE emphasis on all training is on "doing." In the teaching of drill and other subjects in which techniques must be performed, Major General John G. Van Houten, Commanding General of the 8th Division, directed that the trainees should spend 90 per cent of the time actually executing the required actions or movements, leaving no more than 10 per cent of the time for lectures, films, and demonstrations.

Lesson plans for the new training program were written by the units and then submitted to a six-man board of senior officers for review, approval, and standardization with lesson plans sub-

mitted by other units. The approved plans were then attached to a separate training memorandum for each subject, which outlines policies and objectives. Division also prepares notes for the instructor to guide him through the execution of the training.

"We want to train our NCOs and junior officers," says General Van Houten. "We want them to know their men and to know every phase of their jobs. We want them to know that all their men have the right equipment, to know those subjects in which their men are deficient and to correct those deficiencies."

Though the new program has greatly increased the workload of the division's noncoms, it is popular with them. According to Colonel James M. Hanley, whose 28th Infantry Regiment first used the new training system, "A kind of metamorphosis took place in our NCOs. They suddenly found themselves in the position of being 'old soldiers' with the kind of authority and responsibility they should have had long ago." A veteran master sergeant said, "These young corporals and sergeants are learning more from this than they ever learned in their lives before."

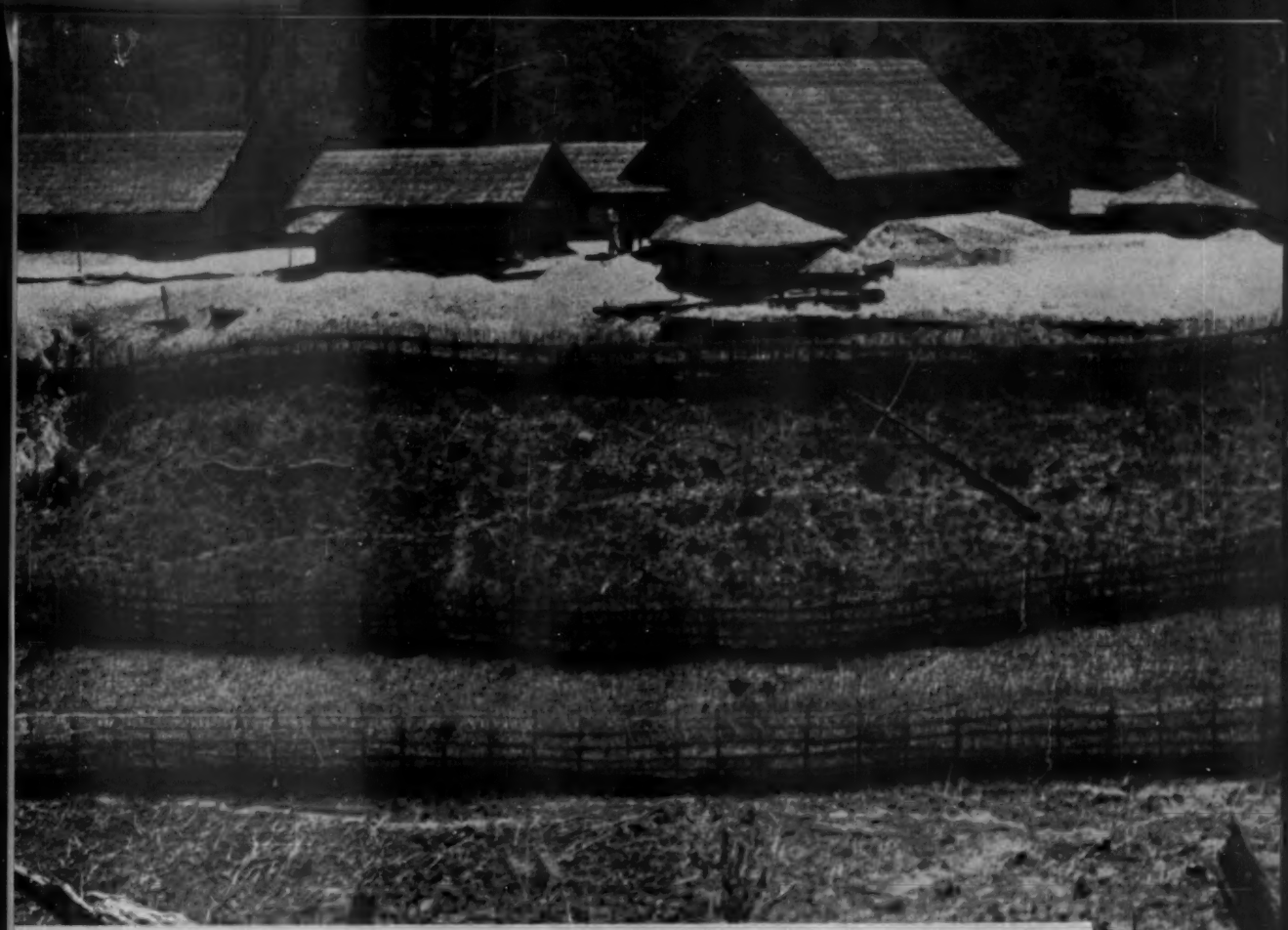
THE program has three main objectives. First, it is designed to train NCOs and junior officers to know their men and be able, if necessary, to lead them in combat. Leadership is developed by giving them responsibility and authority commensurate with their positions. Secondly, *esprit* is developed by having units live and work together with the same leaders and instructors. And thirdly, the emphasis on "training by doing" is designed to produce a more efficient soldier out of the trainee.

This system does not allow for the intense specialization that obtained under the committee system, but General Van Houten believes that the advantages of personalized training offset any lack of "professionalism." "Not that we don't strive for excellence and for the same professional techniques found at installations such as The Infantry School at Fort Benning," he says. "But we feel that this personal contact, the sense of pride and initiative developed in the squad leader when he realizes that he is directly responsible for every performance of his squad, whether on the rifle range or the drill field, will produce not only a superior trainee, but a superior noncommissioned officer."

SFC J. K. Fisher is first-aid instructor as well as first sergeant of his basic-training company. Here he shows two trainees how to apply a stomach bandage

These trainees learn skills by performing them. They spend 90 per cent of the training time in practical work

The mysteries of Army bed-making disappear as SFC Howard H. Smith demonstrates. Trainees and instructors both benefit from the stress on leadership



French forces were scattered over 281,000 square miles to defend fortified positions like this one

The Bloody Lessons of Indochina

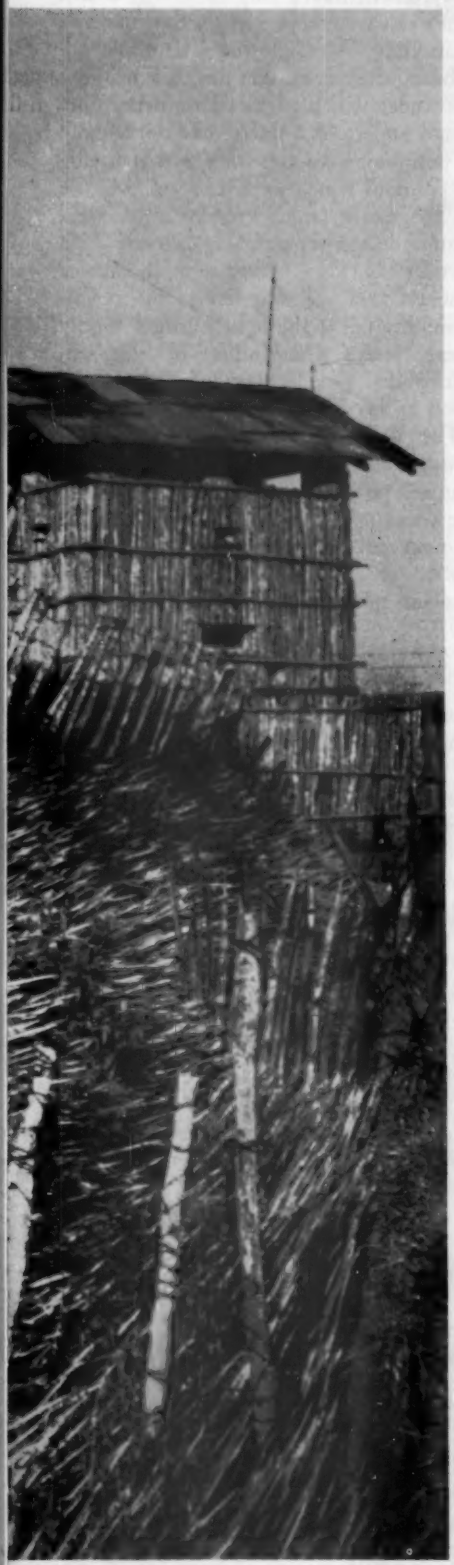
The tragedy of Indochina is that a primitive army, consisting mostly of riflemen, was able to defeat an army equipped with modern weapons largely because its bold and novel tactics were not countered with equal audacity

MAJOR LAMAR McFADDEN PROSSER

IT is often painful and always embarrassing to pick through the litter of a defeat. But it is a necessary chore, for if we can determine the mistakes which produced defeat, we may avoid them another time. Facts, as opposed to theories, about the war in Indochina are hard to come by. It has been a war waged by four countries: France, Cambodia, Laos, and Vietnam; and supplied by a fifth, the United States. It has been an astonishingly expensive war. It has cost France alone more than she has been able to spend to rebuild and repair the wreckage of World War II. The cost in manpower was 65,000 killed and 82,000 wounded. The number of regular officers totally disabled or killed is five times the annual graduating class of the French Military Academy at St. Cyr. Entire units of regimental size, élite, well-trained units containing the best officers and NCOs of the regular service, have been annihilated. And France has not been the only loser. The cost to the United States in military aid to the French Union forces has been heavy.

Figures do not define the cost of the defeat

Razor-sharp slivers of bamboo and barbed wire form *chevaux-de-frise* in front of a Vietnam blockhouse



in Indochina. The true cost will become apparent only when the free countries have readjusted their strategy in Southeast Asia and taken up the new political pressures it has generated.

Even if it had not been so painfully expensive, this "limited war" cannot be dismissed as unique because the pattern is being repeated in other areas of the world at this moment. Other limited wars are brewing. It has been said that this may well be the pattern of war in the Atomic Age. A candid study of Indochina should be useful preparation for the future.

How War Came

There is nothing novel in the way the war came to Indochina. The pattern of colonial wars fought in the past by England and by France herself, remained unchanged. As in most underdeveloped countries, the cross preceded the flag. As early as 1787, French missionaries were attempting to penetrate Cochin China and Annam. In 1880, a French officer with only 188 soldiers established control in the Tonkin delta.

During World War II, France, herself occupied by the Germans, was forced to admit the Japanese in Indochina. The propaganda theme of the Japanese—"Asia for the Asiatics"—contributed to the growing nationalism and a real will for independence. In 1945, there were no French troops available to reoccupy Indochina, and so the British established control, later giving way to the French.

During the Japanese occupation, individual Indochinese Communists agitated among the people. They organized and focused the first uncertain yearning for an independent Vietnam.

IN 1946 came the isolated "incidents," the demonstrations, and the occasional murder. These scattered incidents increased in scale and frequency. Grenades were tossed into crowded sidewalk cafés in Saigon, an ammunition convoy was ambushed, a train derailed. The culmination of all these separate incidents was the carefully planned, well-organized, and brutally executed Christmas massacre in Hanoi in 1946. Dissident groups of minority factions had by this time become consolidated and were being led and incited by fanatical leaders who had been well educated in the techniques of subversion, disruption, and guerrilla warfare. Now the incidents were planned to cause the greatest embarrassment to the native governments and to France. United under the National Political Party (*Vietnam Doc Lap Dong Minh Hoi*, later abbreviated to *Vietminh*), these resistance groups were able to exert a concentrated effect. The war had moved on into a second phase.

The Vietminh now had an army organized, armed, and trained. The rebel army was organized by Ho Chi-minh and other Communist native leaders. It was trained in jungle camps far off the few main roads, and impossible to locate. It was fed on rice captured in raids on native villages, or commandeered from frightened farmers in the swampy rice deltas, and on fruits, game, and fish, which are abundant everywhere in Indochina. It was equipped and armed originally with weapons and ammunition left behind by the Japanese, and later by those captured in ambushes and raids against the French and loyal native troops. Some of its equipment was American, bought from unscrupulous Chinese officers.

In March 1945, the Vietminh announced the independence of Vietnam. The lines were drawn. The issue was the classic cry for independence. Exactly a year later, March 1946, France granted independence to Vietnam *within the French Union*. The Vietminh had tasted victory, and though they continued to negotiate until September 1947, they now would accept nothing less than absolute independence without commitments of any kind toward France, and with no economic ties whatever. The Communist control of the nationalist movement was now obvious.

Where modern vehicles and weapons are effective they are more effective than a dismounted soldier. But the danger is that they defeat their purpose if we allow them to dictate the form of our tactical dispositions or schemes of maneuver. Speed of movement is no index of mobility. When mechanical means are immobile we must be ready to rely upon that most mobile of all fighting machines: the leg power of soldiers.

Marshal de Lattre de Tassigny developed bold and original airborne raids deep in enemy territory. Had he lived, the story of Indochina might have been different

VILLAGES became either Vietminh or loyal. Whole areas of the country could be entered by French and Vietnamese Government forces only in strong, armed patrols. All main roads were kept open in daytime only by incessant patrolling. At night the Vietminh controlled. It was during this period that the fatal attitudes were formed; attitudes which persisted until the end. The French forces undertook a stable defense. Myriad small, fortified positions were constructed. Occupying these defensive positions which were scattered over the entire country, the vastly larger French army could be easily outmanned in any separate engagement. Tied in and tied down by their own barbed wire, the choice of where and when to attack was left to the rebels. One post after another fell to the lightly armed, highly mobile Communist forces who simply encircled, annihilated, and disbanded. One is reminded of the tactics of Francis Marion in the subtropic tangles of the Carolina swamps. The Vietminh tended their rice fields in the passive daytime and struck aggravating blows against the organized positions in the treacherous dark. The blockhouse concept of the French was a tactical throwback, antiquated even before World War II, but with the exception of one short period, it persisted through the last and most gallant blockhouse of all—Dien Bien Phu.

The Influence of de Lattre de Tassigny

During the tenure of Marshal de Lattre de Tassigny —easily the most dynamic and original of the succession of French high commanders—a very decided trend toward a more active form of operation was evident. By sheer personality, as well as by his aggressive concepts, Marshal de Lattre completely revitalized the dispirited veterans of Indochina.

He began using airborne forces in what he referred to as "airborne raids" deep in the enemy zone. The mission of these air raids was to destroy known enemy concentrations, to seize and destroy caches of arms and equipment which were being smuggled into north Vietnam, or to seize communications nets and so prevent the Vietminh from collecting their strength while operations were being conducted elsewhere in the Tonkin delta. In some cases these airborne operations were launched in conjunction with flying columns on the ground. In others, the force was airlifted out of the area after its mission of destruction was completed.

UNTIL the arrival of Marshal de Lattre, no real Vietnamese army existed. Seven separate religious sects had organized men under arms, but they often worked at cross purposes because there was no centralized command. They were not uniformed, and were equipped with a hodgepodge of weapons gathered catch-as-catch-can from many sources. De Lattre furnished them equipment and brought a long-needed measure of unity to the command of the indigenous forces. These forces took their orders only from their own religious leaders and, since the confidence and loyalty of the religious

leaders were tied to De Lattre personally, upon his passing the situation quickly drifted back to the old disorganization.

In addition to the religious forces, Marshal de Lattre reorganized and trained the local militia. Together, these two types of organizations were called *suppletifs*. They manned many of the guard posts, outposts, and blockhouses, particularly in south and central Vietnam, and many of the units fought bravely in the Tonkin delta. But after Marshal de Lattre's death in 1952, their effectiveness as a coordinated fighting force rapidly decreased.

The story of the next two years is mainly a tale of muddle and confusion. Inconclusive fighting continued for eight months of each year. During the rainy season both sides accepted stalemate. Operations with stirring code names were undertaken without marked effect in various parts of the country in this interval. Vietminh strength increased after each successful encounter. The war did not become professionally interesting again until the gamble of Dien Bien Phu.

The Gamble of Dien Bien Phu

The organization by the French of the position of Dien Bien Phu has been severely and, I believe, unjustly criticized since its fall. When it was conceived it was at least a justifiable military move. It represented a break from the old pattern and a seizure of the initiative by the French.

The problem at that time was to force the Vietminh to come into the open and fight. In order to do so, the French command deliberately selected a position which was weak enough to tempt the rebels, yet strongly fortified and capable of prolonged resistance. If the Vietminh accepted the French bait and entered into an all-out battle, the French reasoned, the full advantage could be taken of the French Army's technical and numerical superiority. For obviously, the French Army was superior. It had artillery, which the Vietminh did not. Moreover, the French enjoyed complete domination in the air. They could strafe and bomb without interference. They could deliver troops and supplies in more adequate quantities to support a major action. Here was an opportunity to fight a battle along traditional lines where tremendous losses could be inflicted by the superior automatic-weapons firepower of the French against the mass manpower attacks of the Vietminh. These were the reasons why the French Army accepted battle in terrain which was admittedly unfavorable to defense. The French command gambled that merely by holding this position until the rainy season drowned out all fighting on the ground, by beating off with great casualties all Vietminh attacks, they could break the back of the rebel forces.

Not all the cards were stacked in favor of the French. Many of the advantages on which the French had counted were cancelled out by Chinese Communist intervention in the war. Now there was effective artillery on both sides of the perimeter at Dien Bien Phu. There were antiaircraft guns in surprising numbers, surprisingly well handled. The Vietminh were no longer a guerrilla band but a disciplined, cleverly led army, fully equipped with modern weapons with the single exception of air power.

ON these terms the contending armies engaged. No martial prose could possibly add to the valor of the forces at Dien Bien Phu. Their courage and grit can never really be understood. It can only be admired. And so it is unpleasant to recall two facts which must be a part of this saga: no effort was made to relieve the besieged garrison at Dien Bien Phu either by an overland column, strong reinforcement by air, or by action on other fronts; and the fall of the garrison did not make the French position in Indochina militarily impossible, as has been suggested since.

With the intervention of Communist China the war changed as dramatically and as definitely as was the case when she intervened in Korea. But the loss of the fortress was not militarily decisive. French intelligence could not have been good at this time. The arrival of enemy artillery, antiaircraft guns, and troops in such numbers should not have surprised the French. Yet, apparently, there was no warning of this reinforcement, and so it had twice the effect it should have had.

The Unanswered Question

Once the airstrip at Dien Bien Phu was lost, the outcome of the battle was no longer in doubt. To supply and reinforce a force of this size by airdrop was completely feasible. As a matter of fact, this was done for more than seven weeks, but the build-up inside the perimeter was not sufficient in either personnel or equipment for a major operation against the forces besieging the fortress. Why the French declined to increase the garrison sufficiently for offensive operations is the great unanswered question of the war. Once again the French preponderance in numbers was not to be applied. Once again the concentrated strength of the enemy was exerted against a portion of the French forces. Defeat in detail proceeded. The struggle of those surrounded fighters was heroic and valiant in the classic sense, but it was meaningless militarily. It should have had absolutely no effect on the issue of the campaign.

The defeat of a contemporary army, equipped with the best matériel which could be provided from the arsenals of Europe and America, by a primitive force, primarily infantry, is a shocking development. Without air superiority (or, in fact, any air force at all), without tanks or airborne forces, or any of the contemporary "necessities," this native force defeated the best of the French army. They won because they were highly mobile and because they used their mobility with great skill. The French lost because they committed their strength in small, ineffective combat groups and because they relied upon modern matériel and modern means of movement in terrain where they could not be exploited.

Heavy equipment is more of a burden than a help in a country where rainfall is heavy and roads primitive or nonexistent

Communists must be tracked relentlessly, attacked at night by murderous, aggressive combat patrols—a hide-and-seek game in which the pressure is always on the enemy

Riflemen are the most mobile of all fighting forces in mountains, jungles, swamps—and rice paddies

THAT is the lesson of Indochina. Mobility, as General Gavin has said, which does not result in concentration for battle, is of no use whatever. A man moving through the jungle can be more mobile than a truck moving, no matter how fast, on a road. Speed of movement is not an index of mobility. A man with his feet on the ground is, in the final analysis, the most mobile of fighting forces. A commander who permits his soldiers to become dependent upon transport of any style (truck, plane, or tank) does so at his peril. Colonel Lelandre, the commander of strongpoint ISABELLE, the last position to surrender at Dien Bien Phu, was emphatic in his conviction that we have added so many mechanical aids to mobility that commanders now feel inadequate without them. Colonel Lelandre is determined to preach this gospel in France: that the army must not accept restrictions on its mobility whether these restrictions come about because of terrain or overdependence on vehicles. An army is mobile so long as its soldiers can walk.

It is not necessary to point out that where modern vehicles and weapons can be effective at all they are more effective than a dismounted soldier. The danger seems to be that we may mistake the means for the end. Our present vehicles are given us because in most circumstances they do provide greater mobility than we should have without them. But they defeat their purpose if we allow them to dictate the form of our tactical disposition or our scheme of maneuver. They are a means only.

ROADS where they do exist at all in this primitive country are narrow, earthen causeways, threading across the inundated rice fields. A few coolies working with hand tools can quite easily destroy several hundred yards of road in one evening. There are sections of the colonial highway which were destroyed at night by the Vietminh and hastily repaired again in the daytime by the French over and over for seven years as though the issue of the war hung on the maintenance of this one mile of road. The roads were interdicted with artillery during the night, but the destruction continued. Often the roads were mined by the enemy, and where this happened the obstacles were covered by snipers dug in and perfectly camouflaged in lush tropic growth. When questioned about the feasibility of combat patrols to intercept the rebel destruction parties, French officers shrug and reply, "We were ordered to avoid casualties."

In mountainous or jungle sectors it was always difficult for columns to operate with flank patrols. When flank guards were thrown out they had to hack their way forward through dense jungle growth, or through boggy, shoulder-high rice fields—a slow and dangerous job where a soldier could be silently killed without alarming other members of the patrol or alerting the main column. The speed of a column working in this way had to be geared to the speed of its flank guard. Two kilometers an hour was exceptionally good time.

The *esprit* of the Foreign Legion was maintained in Indochina by such men as this hard-bitten soldier

Because this method was difficult and slow, it was neglected, and ambushes were frequent. When confronted with such tough tactical operations, the Vietminh simply melted into the forests or returned to his village, only to rise and strike again when the opportunity occurred.

IT is easy to criticize what was done. It is another thing to suggest acceptable alternatives. But most observers would agree, I think, that the Vietminh must be met and defeated in their own type of warfare. To fight them effectively they must be hacked out of the jungles, tracked relentlessly to their villages, met at night by murderous, aggressive combat patrols. It is a slow and nasty kind of warfare, but to depend on fortified positions dissipates the defender's strength and leaves all initiative and freedom of maneuver to the enemy.

What Might Have Been

Strategically, it was uneconomical to attempt to maintain thousands of guardposts and blockhouses scattered over 281,000 square miles of undeveloped country. French superiority in manpower was thus dissipated in casual engagements, none of which could be decisive. Now that the pressure is off and the problem can be considered objectively, most observers are of the opinion that a sounder policy would have been a more active, mobile operation which would have permitted concentration in overwhelming strength.

A brutal seek-and-search operation, fought mainly

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Col. Harold G. Haskell

Col. A. D. Surles, Jr.

M/Sgt. W. O. Wooldridge

off the roads and rolling gradually northward in combination with airborne and motorized operations against known enemy concentrations, would certainly have been necessary. Beyond any doubt, casualties would have been heavy in such a campaign, but a quick, deep wound is often less bloody and less dangerous than a more superficial one which results in a slow but steady loss of blood. Every experienced soldier understands that it is often necessary to accept casualties today in order to avoid excessive casualties tomorrow. In the end, battles of attrition are always the bloodiest. Furthermore, they are indecisive.

Air power was not as thoroughly exploited as it might have been. Column cover would have made more feasible the sort of road-bound motorized work which was attempted. Air transport, air supply, helicopters, and observation craft could have been used to greater advantage since there was no opposition whatever in the air. The French air force, created since World War II, lacked experience in the techniques of airdrop and aerial supply which were perfected over Europe. It will doubtless benefit immeasurably from the effort in Indochina.

Hundreds of motors do not guarantee mobility. Nor does a lack of transport prevent the use of the principle of mobility. Mobility is relative and, in final analysis, depends on perseverance and determination. An up-to-date contemporary army must not accept a static battle where its technical superiority of weapons and equipment is nullified. Terrain does not exist which does not permit mobility.

Rebels are always receptive to new ideas because their very weakness, in the traditional sense, forces them to multiply their combat effectiveness by utilizing to the utmost the factors of surprise and boldness. Professional armies are most often conservative in their tactics, relying upon the proven and the traditional ways of war. When a rebel force faces a traditional army, it is necessary for the professional soldier to adjust his mental processes and to treat each tactical situation as though it were brand new. Nothing can then be done by rote. Novelty is then at a premium. For the rebel commander counts on the methodical approach of his traditional opponent and the professional's operating procedures become easily predictable.

A military gamble must be played out to the last card. Having invested heavily in a great battle, the commander must use every trump and finesse fearlessly. If he does not, the enemy collects points by default. No leader is justified in carrying on a battle one hour after he decides that victory is beyond his capabilities, but he owes it to his army not to concede a trick while he still holds unplayed cards. On the timing of this decision he must be judged. No preponderance of strength can substitute for a burning desire—a necessity to win.

THESE are the simple, but bloody, lessons of the tragedy of Indochina.

WEB DEFENSE

Our purpose is to enmesh the enemy in a web of defensive perimeters and then to strangle him by denying him logistical support. Like a fly caught in a spider web, he becomes more entrapped

Lieutenant Colonel James W. Edwards

THE threat of atomic weapons makes changes in our defensive doctrine imperative. Instead of clinging to the linear concept, in which the organization of mutually supporting defensive areas is precluded, today's warfare calls for a type of defense that permits all units in an area to support one another. I call this system "web defense," though it could also be named "hedgehog," "area," "center of resistance," or "perimeter" defense. It is not a new idea. It was used with great success by German divisions in Russia in 1941 and 1942; and the Russians, finding the system hard to defeat, incorporated the German methods into their own defensive doctrine. Our own units, notably the 23d Infantry Regimental Combat Team at Chipyong-ni, Korea, in February 1951, have also used a type of web defense successfully. This defensive doctrine can be used equally successfully in atomic or "conventional" warfare.

Web defense is an area defense which abandons most of the concepts of the present doctrine. Under the new concept, the commander would analyze the terrain and attempt to defend only that which is critical. If the terrain is carefully chosen, the enemy will have to secure it.

There would be no "normal" frontage or depth. The critical terrain would be divided into areas limited in width and depth by boundaries. Each division commander would be responsible for the defense of his assigned area. The areas will vary in size with each situation. The non-critical terrain will be kept under surveillance by air and ground patrols.

THE critical terrain features of each area will be occupied by a regimental combat team or its equivalent, organized in a perimeter for all-around defense. A battalion combat team will generally be too weak to do the job, and a regimental combat team is almost as difficult to hit squarely with an atomic burst. It is better to take this calculated risk and have an organization capable of conducting either an atomic or a conventional war. For atomic warfare we need changes in tactics but not in organization.

In web defense there will be no MLR, no battle position, and no rear battle position. The RCTs need

not be within supporting distance of each other. Each RCT will remain within its perimeter until ordered to move. The phrase "hold at all costs" should be deleted from all FMs.

All units, including those which are normally kept in reserve under the present doctrine, will be assigned areas to defend. The areas will be at least two deep in every direction. A web will thus be produced, composed of defensive areas adjacent to each other, with at least four regimental perimeters in each area.

All regimental perimeters not actually under attack will be available as reserves and may be ordered to leave their positions to counterattack an enemy penetration. The fact that an area is located behind another area under attack will not automatically make it a reserve. If an enemy attack penetrates the area, the rear area will become a battle area. An area or a perimeter within an area can become a reserve for a higher unit only on orders of the higher-unit commander.

The division commander will have complete freedom to defend his area as he sees fit, and he can order any of his perimeters to become a reserve for a counterattack. But he must inform the next higher commander that he has used a regiment as a reserve, so that the higher commander will not use that regiment as his own reserve.

Warning of the enemy's approach will be received from the air and mechanized units in the covering force or from the patrols that are continuously being sent out from the regimental perimeters. As soon as the enemy comes within range, the artillery of all nearby perimeters will begin to fire on him. If the enemy attacks a perimeter, the RCT within that perimeter will defend itself according to present doctrine. Air units and the artillery of other perimeters within range will assist by firing on the enemy with conventional or atomic missiles. The perimeter under attack will be resupplied by airdrop or cargo helicopters, which will also evacuate the wounded.

If the enemy avoids the perimeters and advances between them, he will be taken under fire by all artillery within range and will be kept under continuous bombardment from the air. If he avoids the critical terrain features, he will have to advance without proper logistical support, since he will have only the food and ammunition that his attacking troops can carry. As soon as he is forced to slow down or halt, several RCTs can deliver a coordinated, converging counterattack.

THE present-day doctrine on critical terrain, which stresses fields of fire, concealment, observation, and natural obstacles, is rapidly becoming obsolete. The emphasis on the defensive organization and retention of high ground is a mistake in modern warfare. Liaison planes are all we need for distant observation.

There is no need for small arms to have fields of fire to the limits of their ranges. Only expert riflemen armed with sniperscopes can consistently make hits beyond 500 yards. Machine guns on our MLR are usually kept silent until the enemy assaults and they begin firing on their final protective lines. And anyway, if we can observe and shoot at the enemy at great distances, he can do the same to us.

The theory that a good defensive position must have natural obstacles is also losing its validity. Paratroopers, air-landed troops, modern bridging equipment, landing craft, and amphibious wheeled and tracked vehicles have all reduced the effectiveness of obstacles. The entire subject of obstacles and barriers needs further study.

The most important factor in modern defense is lines of communication. The modern army needs roads and railroads to move its supply trucks, artillery pieces, tanks, ammunition, and equipment for any appreciable distance. Without these, its forward assault echelons will "wither on the vine." This is true, too, of the Communist armies, as they become increasingly mechanized. The term "lines of communication" is misleading, since it suggests a telephone or power line. "Lines of supply" or "logistical lines" would more clearly portray their main military function.

Critical defensive terrain is the ground which, if occupied by us, will deny the enemy the use of supply lines. This is the chief criterion for choosing a defensive position under the doctrine of web defense. Of lesser importance are observation points, fields of fire to mid-range, cover and concealment, and natural obstacles. Our purpose is to enmesh the enemy in a web of defensive perimeters and then to strangle him by denying him logistic support. Like a fly caught in a spider web, he becomes more entrapped and weaker the farther he proceeds, until a counterattack finishes him.

A DIVISION will normally defend an area. The division commander will have four RCT-size units. Three of these are actual RCTs, each consisting of an infantry regiment and a field artillery battalion, while the fourth, which will be weaker in manpower but stronger in mechanized power than the other three units, consists of the remainder of the division.

The division commander will place his four units so that they block the lines of communication in his area most effectively. He generally will attempt to "checkerboard" his four units in order to give his defense both width and depth. The units must never be so close together that the maximum damage area of one atomic burst would cover any two of them.

The RCT commander will usually establish his regimental perimeter around a point that blocks a critical line of communication. He should never let more favorable but distant ground lure him into extending his perimeter beyond the distances prescribed by Infantry School doctrine. All foxholes and weapons emplacements should be constructed with heavy overhead cover and connected by shallow trenches to deep underground shelters, stocked with several days' supply of ammunition and rations. The shelters should be deep enough to protect all members of the garrison from atomic air bursts. No protection can be provided against

surface or sub-surface bursts, but a direct hit of this nature would be about as likely as a direct hit on a foxhole with a 155mm shell.

The division of the future will probably have to be provided with heavy excavation equipment for the construction of deep shelters. No time should be wasted digging dummy positions because they seldom deceive an intelligent enemy and they also provide the enemy with cover when we counterattack him. Only the minimum transportation should be dug in within the perimeter; the remainder would be sent to the rear areas.

When not under attack, the perimeter command will send daily patrols in all directions. These patrols will return to the perimeter before dark. They will contact adjacent perimeters. This will eliminate the need for combat outposts. If necessary, a reconnaissance of up to a battalion combat team in strength may be sent out of the perimeter, but it must also return by dark.

IN the event of an enemy attack, most of the garrison of a perimeter should remain in the deep shelters until the enemy is within 500 yards. If the enemy suddenly withdraws, the garrison, except for the necessary lookouts, will retire to its shelters in anticipation of an atomic attack. After the burst, radiation instruments will quickly check the positions, and those found safe will immediately be reoccupied. Sectors found dangerous may have to be occupied by a minimum number of men wearing protective equipment, who will be relieved by others before they can absorb fatal dosages of radiation. The enemy assault that follows a nuclear burst will be repulsed in the conventional manner.

When an enemy attack hits an area, the division main supply route will be closed, and all subsequent supply to perimeters will be by air. Division supply points, like the present-day division ammunition offices, will be merely mobile coordinating points that allocate supplies and direct transportation to the rear-area supply depots.

Each perimeter will make plans to assist adjacent perimeters by counterattack. Routes, line of departure, and all other necessary details for a counterattack will be reconnoitered on the ground by all key personnel. Having placed his reserves in the best possible locations, the division commander will not have to worry about moving them long distances when the enemy attacks.

When an RCT leaves its perimeter, it will carry all its weapons and equipment with it, abandoning the position completely. After it has accomplished its counterattack mission, the RCT may be ordered to reoccupy its original perimeter. But if the enemy has occupied a perimeter during the absence of its garrison, no attempt will be made to recapture it. The RCT that has been displaced will be ordered to organize another perimeter from which it can accomplish its original mission.

The addition of a fourth infantry regiment to the present infantry division would allow an area commander to organize five perimeters. A fourth battalion in each regiment and an additional armored infantry battalion in each division would make the perimeters strong in defense, would give the division more power in the attack, and would furnish the division commander with a strong mechanized force for attack or counterattack. Nevertheless, web defense can be employed without these additions.

THE corps commander will be assigned a corps sector by the field army commander. He will divide the critical parts of his sector into areas, each of which will be allotted to a division commander. He will never assign more of his divisions to defend the width of his sector than the depth, but if his sector is narrow he may well have more divisions disposed in depth than in width. The blocking of each line of communication should be made the responsibility of a specific division. Even those divisions that are now called corps reserve will be assigned areas. In the corps, as in the division, all units not being attacked will be considered as available reserves for counterattacks and all areas as future battle areas.

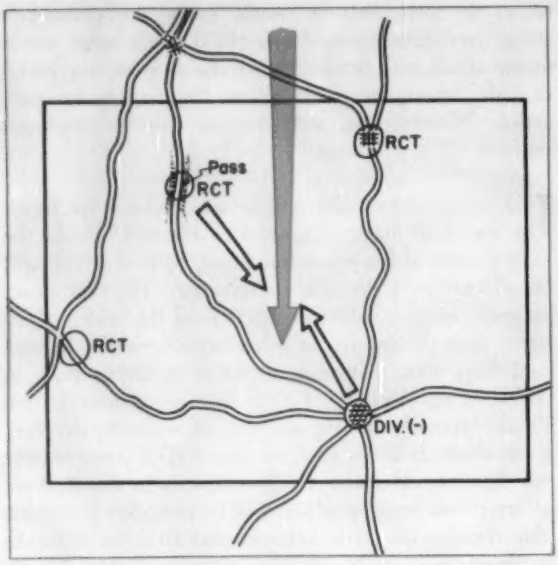
Corps artillery units will also be formed into regimental-size perimeters. Units assigned long-range interdiction missions may initially have to occupy firing positions in front of their perimeters to accomplish their initial fire missions. Even the corps mechanized units will occupy perimeters. Corps headquarters, like division headquarters, will be in a perimeter. The perimeters of corps troops will be assigned to provisional areas, with at least four perimeters to each area. The present system of supplying divisions directly from army supply points will be continued. Independent corps will form their own webs, with corps troops in the center, surrounded by combat division areas.

If a strong enemy attack penetrates the corps web, the corps commander may order divisions in areas adjacent to the battle area to counterattack. The corps commander will also use the corps artillery and any air units available to him, to assist areas under attack.

All field army supply points and other rear-area installations may be formed into perimeters. All supplies and equipment that cannot be included in the perimeter will be destroyed if an enemy penetration or airborne attack forces the depot troops to withdraw within their perimeter. Airfields will be defended by establishing perimeters around them; they will be the only perimeters not tactically located.

To defend the terrain that he has chosen as critical, the field army commander may occupy it with a field army web, placing his service troops in the center and surrounding them with corps webs. Or he may assign the necessary number of corps to defend the critical terrain and place any corps remaining in field army reserve. Corps in field army reserve will still organize webs no matter where they may be located. The field army may also use variations of these two methods.

WEB defense has several apparent disadvantages: the high ground is usually abandoned to the enemy; ene-



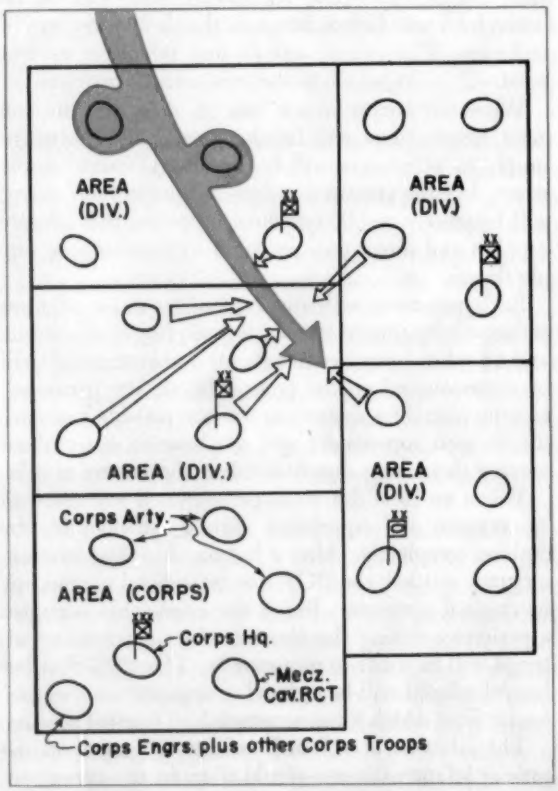
A division area in the web defense. Note that the perimeters are located at points that control communications

my assault troops can avoid the perimeters and advance deeply into our position; overwhelming enemy forces can be massed against one perimeter at a time. But these disadvantages are more apparent than real. Since we do not occupy all the terrain, we can conserve manpower to defend the lines of communication. The enemy is sometimes allowed to occupy high ground, but any observation posts that he can establish on them can be blasted by our direct-fire weapons or by air bombardment. Enemy assault troops that are foolish enough to advance deep into our position will be under constant air and artillery bombardment. When lack of logistical support has weakened them, they will be counterattacked by reserves that are already in position. And the fact that the number of enemy troops will be limited by the terrain will make it impossible for the enemy to eliminate one perimeter at a time. The massing of the enemy will furnish excellent targets for our artillery and air. In addition, pressure against a perimeter can be relieved by counterattacking the enemy assault troops from the rear. In the final analysis, if the enemy, at a terrific cost in casualties, does succeed in taking a perimeter, this local success will not seriously handicap the overall conduct of the defense.

Our present defensive doctrine leaves our forces extremely vulnerable to atomic attack. It offers the enemy the concentrated targets along the MLR that he desires. The variations of this doctrine—extended-position defense and mobile defense—present large, concentrated reserve formations in the open for comparatively long periods of time.

IT is evident, then, that in nuclear warfare we cannot afford our present defensive doctrine. As long ago as 1950, Lieut. General James Gavin wrote in COMBAT FORCES JOURNAL ["Tactical Use of the Atomic Bomb" Nov. 1950]: "Land warfare will change in character, both offensively and defensively, to accommodate itself to [atomic weapons]. Great and continuous dispersion out of immediate close contact with an enemy, an ability to fight effectively in all directions, better communications, lighter and more numerous automatic weapons, electronics systems to 'close' the gaps between physically isolated units, and a high degree of air and land mobility should all characterize the defense of tomorrow."

Web defense has the characteristics that General Gavin calls for, and it has the additional advantage that all elements of a unit, including supply installations, would be protected from nuclear air bursts. In web defense, only critical terrain is occupied; manpower is conserved; the enemy is denied vital lines of communication; a true defense in depth is organized; reserves are dispersed, protected, and located adjacent to their areas of probable employment; the defense is equally strong in all directions from which the enemy may attack; air power is made full use of; there is only one defensive doctrine for all units and all situations; the perimeters are capable of withstanding massed enemy attacks for an indefinite period; and the fall of one perimeter will not seriously hinder the conduct of the remainder of the defense.



A corps area. The deeper the enemy penetrates, the more of our units enter the fight to trap and destroy him

This article is taken from Combat Support in Korea, *a new book published by the Combat Forces Press in cooperation with the Office of Military History, Department of the Army. It is a companion volume to* Combat Actions in Korea, *published last year by Combat Forces Press.* Combat Support in Korea *describes the work of the technical services that made it possible for the Eighth Army to fight in Korea. The narrator of the article published here went to Korea early in that conflict as an observer for the Quartermaster General. His report, made in April 1951, discussed frankly the bad as well as the good aspects of rations in Korea.*

Rations in Korea

As told to Captain John G. Westover by Major Lawrence Dobson

TO accomplish my subsistence and packaging mission, I visited the three corps headquarters, all division headquarters, and units within the divisions. In addition, I visited all the army supply points and the mobile bakeries.

I would like to start with a discussion of the operational ration since I feel that was the major portion of my mission. As you have heard, the troops in Korea are fed two hot meals a day whenever it is tactically possible. It is desirable, of course, to have three hot meals, but we say a minimum of two: normally breakfast and supper. Noon meals are an operational ration. Hot meals were started by necessity because of a shortage of operational rations. Today we have plenty of rations, but the troops and the leaders appreciate the benefit of kitchen-prepared meals. It is a terrific morale builder among the forward elements.

First, I would like to discuss the 5-in-1 ration. During the last part of February 1951, Eighth Army asked that no more 5-in-1 rations be sent to Korea. That was quite a shock because we in the States had always considered the 5-in-1 our most acceptable ration.

Its military description said it would be used to serve small detachments—tank crews, gun crews, isolated units. I found that Eighth Army did not want the 5-in-1 ration because it was not satisfactory for the forward units. The men of these units do not have their mess gear or heating equipment with them; they travel as light as possible. Therefore, the 5-in-1 was difficult to break down and eat. I found that the ration was unacceptable when consumed cold. Still, that was the way it had to be consumed when it was issued to forward units.

The 5-in-1 was used in several cases as an emergency B ration. For example, the 31st Infantry was well advanced when a thaw hit. Roads were impassable, the regiment's kitchens were forward, and the men had to be supplied by air. So the 5-in-1 ration was dropped and used as a B ration. It was quite successful, but the mess stewards complained that there were not enough vegetables.

Before its cancellation request, Eighth Army decided there was insufficient food in a case for five men, and changed the basis of issue from 5-in-1 to 4-in-1. That again caused waste, since the accessory items—candy, chewing gum, cigarettes, peanuts—

were put into the ration on the basis of five men. Still, four men used it.

I said that the 5-in-1 was unacceptable cold. When it was heated, the men did not care for the beef and gravy or the pork and gravy. They complained that there was too much fat, too much gravy, and that the meat was over-processed—just a mess of shreds and nothing to chew on.

As for fruit and jam—well, the best-accepted item is canned fruit. You can't give the men too much of it and, if you ask which is the most acceptable, they will think a while and then they might say "peaches," or they might say any of the other fruits. Vegetables are the same as in the B ration, and are a matter of preference. Canned puddings and desserts were well received. The precooked cereal in the ration was rated very low to fair. If the men had to add hot water to it themselves, it had poor acceptance. If the mess sergeants added milk and heated the cereal, it had very high acceptance. If only cold milk was provided, it had fair acceptance.

I would therefore recommend that the 5-in-1 no longer be considered a combat ration, but rather a ration to be used by small detachments in a semi-permanent location with ample cooking facilities available to them; and that the ration also be considered an emergency B ration—one that can be moved in as I have explained.

WHEN we started, we had the C-4 ration. We procured the C-6 ration and, later, we had a C-7.

The C ration is the most acceptable ration we have in use in Korea. Everyone likes it. The relative acceptance ratings of the meat items are: (1) beans and frankfurters; (2) beans with pork; (3) meat and beans; (4) ham and lima beans; (5) spaghetti and meat; (6) hamburgers with gravy; (7) pork sausage patties with gravy; (8) meat and noodles; (9) chicken and vegetables; (10) beef stew; (11) corned-beef hash.

This ration is a combat ration, and one of its characteristics is its capability of being consumed hot or cold. The reaction of the men was that the only items acceptable cold were the three bean items. The principal complaints were against the meat-and-spaghetti and the meat-and-noodle combinations. Both items were too dry, and when heated they would burn. The hamburgers and the sausage patties had too much fat and too much gravy. It is difficult to determine the acceptance of the chicken and vegetables. In the C-4 and the C-6 we had a chicken-and-vegetables combination. The men disliked it. We had previously received reports on this, and in the C-7 we have a product of the same name but from a different formula. The men interviewed who have eaten the C-7 reported that the acceptance of the chicken-and-vegetables was very high. It is a very good product.

THE corned-beef hash and the beef stew had very low acceptance ratings. Part of this can be attributed to the fact that, when operations started in Korea, we had a limited stock of meat items to be issued in the B ration. Supply Bulletin 10-495 has the menus we had planned to use, but we didn't have the items in stock. We had quantities of beef stew and corned-beef hash on hand, so they were shipped. The men had corned-beef hash and beef stew; beef stew and corned-beef hash. So the principal objection to the corned-beef hash in the C ration is that it has become the Spam of the Korean campaign. Beef stew—well, too much fat; very poor acceptance when cold.

It had been reported previously that there was too much meat in the C ration. I found that for those men in the rear areas—those who used the ration only when they were making a movement—there may be too much meat. But we must remember that this ration was designed for the fighting man. He is a young man—old men cannot climb hills. Fighters work hard. They will eat practically all you can carry up to them.

The B units—that is, bread-type units in the C-7—were slightly different from those in the C-4 and the C-6. In the C-7, we attempted to put in each can all the components that would be required for a meal, so that a man would not have to open a second can or open an accessory packet. As a result, the arrangement of components within the C-7 was very well received and liked better than our previous arrangement. Also, in the C-7 for the first time we had a soluble milk product for coffee and that had high acceptance.

The chocolate and the starch-jelly discs are liked. Complaints were made of the starch-jelly discs being too hard to eat during the cold months. Also, the men got a little tired of having the same thing repeatedly, and requested additional types of confection.

The most acceptable item is fruit. In the C-4 and in the C-6 we had two 6-ounce cans of fruit. In the C-7 we had one 8-ounce can of fruit. The first reaction soldiers have to the C-7 is: "What? Only one can of fruit?" Mess sergeants, platoon leaders, and everyone else complained. It was too difficult to divide the ration. They tell of fights among the men over who is going to get the fruit. So I would recommend that in the future we change from the one 8-ounce can back to our two 6-ounce cans.

When I asked, "What do you think of the individual combat ration?" the first thing said was, "Where is the spoon in the C-6?" And the next thing: "The C-7 is a lot better ration; it has a spoon."

As I mentioned before, the men carry nothing. Mess kits are kept in kitchen trucks. Soldiers are stripped down—no packs—just the clothes they wear. We also used to think a man would never lose his eating utensils. That is not so. They lose them, and unit commanders cannot have them resupplied as fast as they are needed. In many cases knives, forks and spoons are kept in the kitchen. At first the C ration came without spoons, and we got reports of men eating beans with their fingers. One Marine colonel cut his finger in trying to make a spoon from the top of a can. I would say—and I am stating the opinion of everyone I interviewed—that plastic spoons are a *must* in the operational rations.

THE condiment issue in Korea has been very poor. The troops did not have enough spices, and those they did have arrived spasmodically. Condiments reached Pusan in bulk, but there wasn't time to break them down. In Japan a spice pack was made up—three thousand rations to a pack. I feel there is a definite need for a spice pack. If we ship loose condiments, they will get lost at a depot. They will not be broken down and sent forward. Supply points have difficulty in issuing them to small units.

The cooks were doing a great deal of extra baking, but they were not getting condiments. I found, in some companies, that when a soldier was going on rest and recreation in Japan, his company commander would have him report to the mess sergeant to determine what was needed. The com-

pany commander then gave him money from the company fund and the soldier bought condiments in Japan so the company's kitchen would have nutmeg, cinnamon, cloves, vanilla, maple, and the like. I think this shows a definite requirement for a spice pack.

The fire units actually are holding up well, but spare parts are a problem. For instance, the 3d Infantry Division followed the book and issued all the spare parts. As a result, spare parts were all over the division but not in the place where they were needed. In the 24th and 25th Infantry Divisions, the food-service supervisors set up equipment repair shops. Faulty field ranges, Coleman lanterns, and one-burner stoves were turned in to the regimental supply officer, taken to the quartermaster when the regiments drew their rations, and exchanged for serviceable units at once. It was surprising how few unserviceable units were in these divisions. The repair men are better mechanics and better at improvising than the average cook.

The cooks in the forward areas appreciate their position. Part of that might be attributed to the policy in some divisions that each cook must go forward once a week and spend twenty-four hours with the riflemen of his company.

"The farther forward you go in Korea, the better you eat."

I FOUND that the cooks are really doing more than I thought they would. Our cooks are doing a marvelous job. They know how to prepare dehydrated eggs and milk, and have made granular potatoes more acceptable when mashed than fresh potatoes. I recommend we reduce the quantities of fresh potatoes and limit the use of fresh potatoes to French fries and an occasional boiled potato. Cooks are baking pastry and rolls far more often than the menu calls for. The men like the baked products.

I hope I have not left the impression that our cooks are perfect. Not all our replacement cooks are adequately trained. They can cook, but some do not know how to clean a field range. Others do not know how to light one. On care and maintenance of field equipment, not all have the knowledge and training. Some do not know how to put up a tent, and it is quite difficult for a person who has never erected one himself to direct a crew of Korean laborers who don't know either. Field sanitation is sometimes poor. The plea of the people in the field to the food-service school is "Give more field training."

THE farther forward you go in Korea, the better you eat. In Pusan menus are planned for three areas: Pusan, Taegu, and north of Taegu. In other words, north of Taegu is the fighting front; Taegu includes Eighth Army headquarters and its supporting units; and Pusan is the dock area. When any item is in short supply, it is distributed first north of Taegu, then to Taegu, and finally to Pusan. If the quartermaster had limited supplies of frankfurters and frozen turkey, the frozen turkey would go north of Taegu, the frankfurters to Taegu, and corned-beef hash to Pusan.

I am sure you have been told before of the method of feeding forward elements in Korea. The meals are cooked in the battalion area, then carried forward in jeeps as far as possible, and finally packed by the Korean bearers using carrier straps or A-frames. Now, there are problems involved. Bearers cannot carry water up to the top of the hill except for drinking, and they cannot carry a stove to heat mess-kit water, so no one on the hill keeps his mess kit. The kits are all kept back in the kitchen and are carried forward with the food. This is a problem, since the meat cans do not nest very well. Fifty mess kits to take care of an average platoon will fill a foot locker, so the mess kits are carried forward in foot lockers, boxes, or duffel bags. They are washed first in the kitchen, but they become dusty on the trip forward.

Everyone asked: "What are we doing with the mess kit? It is no good. Throw it out. Give us a tray."

All except one colonel who asked: "What would the men do if they found some eggs? How would they cook them?"

When I inquired where his unit carried their meat cans, his reply was that they kept the mess kits in the kitchen. I asked how they would cook the eggs then, and he answered that they *might* have the meat can with them.

TASK FORCE RAZOR SHAVES BIG APPLE 2

ANTHONY LEVIERO

Three teams of tanks and armored infantry advance across the floor of Death Valley during Task Force Razor's tactical march from Camp Irwin, California, to Yucca Flat and the rendezvous with the atomic bomb.

Robert Phillips from Black Star

YUCCA FLAT, NEVADA

THE claim of tankers that armor will be the decisive arm in atomic war put in an impressive bid before dawn on 5 May when the tanks and armored personnel carriers of Task Force Razor crashed forward under the churning, mushrooming burst of Apple II, minutes after zero hour. The steel monsters shook off atomic heat, blast and radiation, leaving the occupants unharmed. It was the first time men had been above ground on Yucca Flat during an atomic explosion.

As the task force moved forward it blazed a trail that military tacticians and technicians will necessarily follow closely. For they are the ones who will decide what significance it may hold for the future. However it was plain to those who participated or witnessed the test that armor's claim was impressive.

Apple II was the Army's code name for the atomic device that packed the power of 30,000 to 35,000 tons of dynamite. When that power was unleashed, Task Force Razor let it blow over them. Then, with crews and infantry aboard, it plunged through the danger area unharmed and unimpeded. It got under way within eight minutes after the shock wave jolted the massive M48 Patton tanks and could have moved even quicker. Ordinary infantry could hardly have reacted as fast.

The test suggests some obvious questions: Should we have more armored divisions? Shouldn't we give infantry a lot of armored carriers? Is Task Force Razor a good prototype of a battle group for atomic warfare? Questions like these are already being examined in the reorganization experiments at Fort Benning, and Fort Hood. The lessons from Apple II ought to help the researchers.

THIS will be a report on Task Force Razor's rendezvous with the atomic bomb, by an observer who went along for the ride. The task force made history in more ways than one. It was the first armored unit to maneuver with

Anthony Leviero

From the loader's hatch of Tank 21, Reporter Leviero snapped this picture of M48 tanks moving in a simulated attack across the Nevada desert eight minutes after a tactical atomic bomb had exploded 3,200 yards from the nearest tank. Behind the tanks came infantry, mounted in armored personnel carriers, while overhead roared a flight of H-19 helicopters carrying a platoon of infantry to the objective—a high ridge to the left of point zero.

the simulated battlefield use of an atomic bomb. It was the first time that men had been above ground on the test site during an atomic explosion.

Before the task force reached its bivouac on Yucca Flat it marched cross-country, 171 miles, over some of the worst terrain in the world. It was the longest cross-country march ever made by the M48 Patton tank and the M59 armored personnel carrier. Task Force Razor did all these things without great strain.

In the clear, moonlit morning of 5 May, Task Force Razor was deployed in wedge formation, ready for combat. I arrived by jeep at 3:30 A.M. and climbed aboard Tank 21, 2d Platoon, Baker Company. In the light of the full moon lowering on Mine Mountain, the hulls of the Pattons stood out prominently, their 90 millimeter guns bespeaking power on the brooding silence of the desert. All around, the arms of the Joshua trees were silhouetted grotesquely. Squat yucca trees bulged above the sage.

Over this landscape of desolation a bright twinkle atop a 500-foot tower marked the box-like structure that concealed Apple II.

On the right were the tanks of Company A, in the center Company C, and on the left flank and echeloned to the rear was Company B. Between Company A and C were Lieutenant Colonel John G. Wheelock and his staff in four tanks. The nearest elements of tanks were 3,200 yards from the shot tower.

Deployed in a line 3,845 yards from the tower were twenty-four APC's loaded with infantry. And behind them were the engineers, the artillery, and tank recovery vehicles. In these ninety tracked vehicles waited 460 men, some tense, some nonchalant, but all conscious that

Anthony Leviero

Tanks deployed in a wedge on Yucca Flat with the shot tower in the distance. Reporter Leviero snapped this picture one morning as dawn broke

Armored engineers simulate the bridging of a river by throwing helicopter-borne timbers across a highway.

Robert Phillips *from* Black Star

New kind of recon team—consisting of commander in jeep, armored personnel carrier and squad of infantry, medium tank and crew, and H-23 helicopter.

they were the first in a historic test of great significance.

Back on Mine Mountain, at 4,900 yards, were more than 300 other men of the task force. Brig Gen. Charles A. Sheldon, commander of the Armored Combat Training Center at Camp Irwin, California, also was observing from Mine Mountain. This was in part a payoff for all that he and Camp Irwin stood for.

The men were rather weary from three previous all-night vigils as the tests were postponed by weather, and those who could caught catnaps. Radio silence was maintained so as not to interfere with the delicate instrumentation of the tests and the crews listened for instructions and orders on land telephone lines that linked every vehicle with headquarters.

All the guns were turned away from the shot tower to avoid possible atomic effects in the tubes and through the optical instruments. All openings were sealed except, in Tank 21 at least, two glass slits that faced away from the tower.

Engines were warmed up and then cut off a half hour before shot time, also to avoid interference with test instruments. The atomic explosion was scheduled for 5:10 A.M. and as the time approached a voice on the telephone announced "It is now Sugar minus thirty minutes. The shot will go definitely."

It was a long half hour and it ended in a thirty-second count heard indistinctly because of the roaring of an air intake to which the crew had connected their gas masks.

APPLE II blew right on time. The interior of the tank suddenly grew far brighter than the glaring desert day. Eerie light flooded through the two slits and it seemed to come through the armor itself. It lingered for a seeming long time for a light without apparent source. After about twenty seconds the light faded, the ground trembled, the tank rocked and a tremendous explosion pressed in on the ears and chest. Within the tank the atomic blast was like the crash and cracking of steel boilers, and the interior boiled with choking dust.

The crashing explosion had barely ended when Second Lieutenant Ralph S. Howard got his platoon of five tanks into action. The turret turned to point the gun towards where the atomic bomb had breached a simulated enemy line. Within a half minute the first blank round of 90mm ammunition was on its way.

All along the line guns and caliber .50 and .30 machine guns opened up. And within a minute the engine of every vehicle roared its readiness to move. The task force could have charged at Shot plus one minute but for safety and scientific reasons the test directors fixed the jumpoff at Shot plus eight.

In three minutes—and it could have been done in half a minute if test rules had permitted—radio communication was established, thus proving that communication equipment was not vulnerable to the blast, radiation and thermal effects of the great explosion.

At Shot plus eight minutes the whole force surged forward. From the loader's hatch of Tank 21 I could see the whole force spewing gunfire. Hanging low over Task Force Razor was the roiling mushroom cloud that soon billowed up to 40,000 feet. Some of the right flank vehicles came within 1,000 yards of ground zero, where they were turned away by radiological safety officers. Then the whole force pivoted on B Company, roaring westward toward Syncline Ridge, the objective, eight miles away.

At Shot plus nine minutes, H-19 helicopters on an airstrip about 16,000 yards from ground zero picked up a platoon of infantry and placed it on the objective nine minutes later. Then as the armor arrived, the choppers were back with barrels of fuel for the tanks and armored carriers.

Task Force Razor, men and vehicles, had transited the

H-19 helicopters carrying a platoon of infantry fly over tank column to secure high ground that lies ahead.

Lieutenant Colonel John G. Wheelock, Razor commander, and his staff pose before his mobile APC CP.

Robert Phillips from Black Star

atomic field unscathed. The only casualty was a finger mashed under a hatch cover.

IT would be wrong to let this story minimize the power of a tactical atomic bomb with the force of 30,000 to 35,000 tons of dynamite. The landscape for miles around was like an inferno; the thermal wave ignited hundreds of Joshua and yucca trees. It was a strange and awesome sight.

The explosion had other impressive effects. One Patton tank, unoccupied and placed at a forty-five degree angle 500 yards from ground zero, was blown over one and a half times. It was found lying on its turret, both tracks blown off and its fender skirts rolled up.

Another Patton at 500 yards facing the tower squarely, like the tanks of the task force, was rolled back ten feet, all forty-eight tons of it. Another Patton, turned broadside at 500 yards, had its right track blown off, its light metal was wrapped around the gun and its gasoline leaked out.

At 600 yards an old M24 light tank was blown to pieces, its turret and tracks tossed 100 yards, its gun 300 yards. A jeep that had survived previous atomic blasts and placed at 500 yards vanished without trace.

Also the explosion had freak effects. The men of Task Force Razor felt no thermal effects. Yet two big Army searchlights hidden behind a 55-foot ridge at 4,900 yards on Mine Mountain, had their lenses fused and made opaque, although the glass was turned away from the explosion. Also in these rear areas the plastic windows of helicopters were sucked out and some vehicle windows smashed. In the task force a few aluminum panels covering APC engines were sucked out.

All this shows that the power of the tactical atomic bomb is to be respected but that its force and effects can be calculated fairly well. The test showed that the commander who chooses his atomic target well can use the atomic weapon with safety to himself and can exploit its devastating effect upon the enemy instantly. Or, if he is on the receiving end, he can minimize losses substantially by sound battlefield deployment.

TASK Force Razor was an improvised outfit, put together at Camp Irwin in March. It was built around the 723d Tank Battalion, 71st Infantry Division, equipped with fifty-five M48 medium tanks, two M41 light tanks in the recon platoon, twenty-four M59 armored personnel carriers, and four 105mm howitzers, plus 200 or so wheeled vehicles.

Fort Hood, Texas furnished the other components of the task force. Its 4th Armored Division contributed the infantry elements from the 510th Armored Infantry Battalion. This consisted of Company C and the 1st Platoon, Company B. Battery A, 22d Armored Field Artillery Battalion and the 1st Platoon, Company C, 24th Armored Engineer Battalion were also contributed by the 4th Armored Division. The 1st Armored Division sent the makings of the 1st Provisional Aviation Company, consisting of seven H-19 helicopters, three H-23 light reconnaissance helicopters, and three L-20 DeHaviland Beavers.

Razor's three-day march from its Mohave Desert camp to Yucca Flat was in itself a feat. The tracked vehicles went cross-country all the way. The terrain was mostly eroded desert flats with intermittent mountains. The soil was generally firm except in the dry washes and swamp areas in the Amargosa River bed, a stream that surfaces only in December, January and February. A tank going off route in some of its swamp areas might well sink out of sight. Visibility was not obstructed by the terrain except when going through several mountain passes and defiles. In a number of places it was necessary for the engineers to clear and widen narrow passages with bulldozers.

The task force left Camp Irwin at 7 A.M., April 18 with the wind blowing 45 miles an hour and the temperature around forty-five degrees. So the advance briefing for the

first day—"very flat, very mountainous, very dry, dusty, hot, very little vegetation"—was only partly true.

The task force headed north in two columns, one minute between march units. After going eight miles it "coiled" in an all-around defensive position, much like covered wagons in Indian country a hundred years ago.

Despite the strong wind, aviation units taking off from Bicycle Lake, one of the dried alkaline beds so common in the region, were soon flying over the column, serving as aerial cavalry such as that advocated by Lieutenant General James M. Gavin.

WHEN the reconnaissance platoon encountered an assumed enemy, indicated by the explosion of dynamite in Avawatz Pass, 3,100 feet, the aviation company lifted an infantry platoon to secure the causeway. Before the force could break out of the Avawatz Mountains it had to breach a field of actual mines armed only with detonators.

Then Task Force Razor descended into the gray, desolate dried bed of the Amargosa River in Death Valley, crossed over into the Ibex Mountains and coiled for the night in the approach to the pass. It had made forty-five miles.

Complete blackout was maintained at night. The men had hot meals for breakfast and supper but ate cold assault rations for lunch while on the move.

The second day the task force made only twenty-seven miles, bivouacking in Deadman's Pass of the Greenwater Mountain Range. Features of the tactical exercise were the laying of spanners by the engineers so that the tanks and armored personnel carriers could cross two hard-topped roads without damaging them. Choppers lifted infantry to secure these crossings.

On the third day Maj. Gen. William Dean, deputy commander of the Sixth Army, dropped down in a helicopter to observe the task force.

As the Medal of Honor general watched the great force roll by—tanks, armored personnel carriers loaded with infantry, the self-propelled howitzers, the light aircraft buzzing over the column,—he recalled the desperate first days of the Korean War when he had to throw his understrength 24th Infantry Division into combat against overwhelming hordes of Communist troops.

"Boy, if we had this," he said, waving his hand toward the column emerging from the desert dust. "If we had some of these choppers on that river above Taejon! These choppers make all the difference in communications."

ON this last day on the march a stiff wind blew straight down the column, enveloping it in dense clouds of dust. Visibility was so bad that tank commanders often could not see their own 90 millimeter guns, let alone the tank in front. General Sheldon said afterward he had never seen worse tank driving conditions. It was a day devoted mostly to a crossing of salt flats and marshes and by nightfall the task force reached its bivouac north of Camp Desert Rock near Skull Mountain.

Some observers felt the rate of march during the first two days was too slow, that the task force had failed to exploit its mobility to the fullest extent.

But within four hours after arriving at Yucca Flat, Task Force Razor had every one of its ninety tracked vehicles in on their own power. Those that broke down enroute were repaired in place. Enroute the 810 horsepower engines of two tanks had to be replaced for causes other than normal wear. One broke down because of a malfunction caused by dust that got into an air cleaner, and the other broke down from vibration. Incidentally, the 723d had used these tanks to train thirteen tank battalions for six weeks each.

Exact fuel consumption by the Pattons is classified, but it was learned that they consumed from 3.4 to 4.8 gallons a mile. This was deemed excellent in view of the rough terrain. Estimates before the march were based on five gallons to the mile. With the task force was Dr. Howard Olson of the Human Resources Research Office, Fort Knox, Kentucky, who was making controlled studies of fuel consumption in selected platoons. His findings have not been disclosed yet.

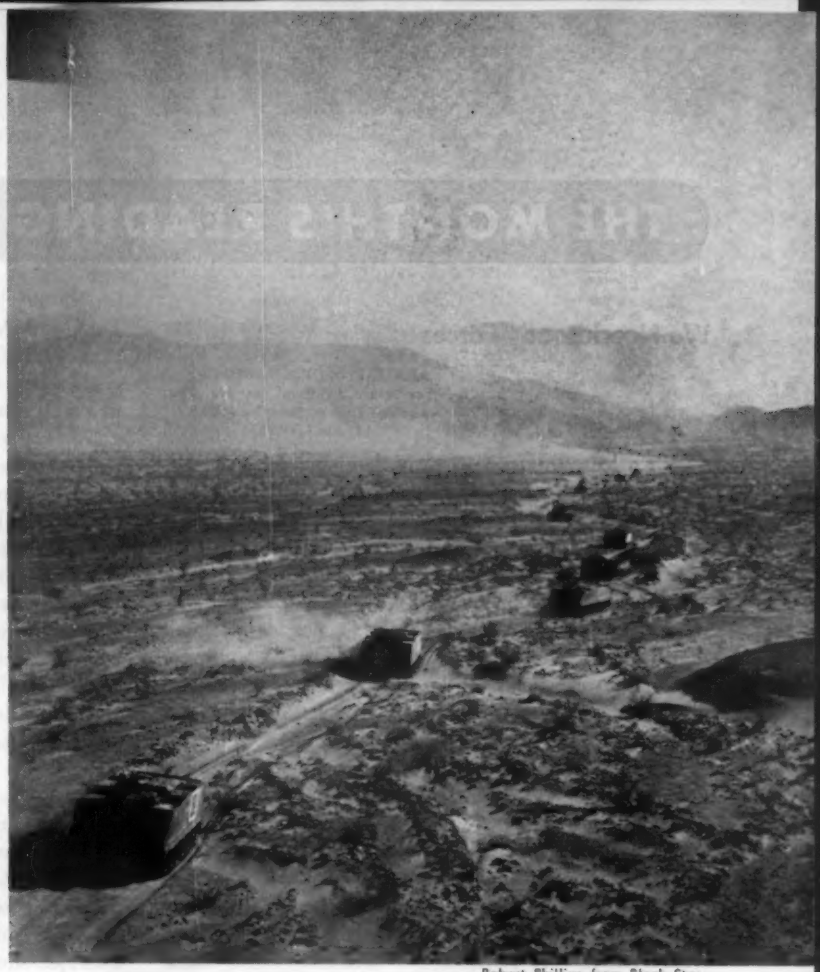
It was estimated that the APCs consumed gasoline at the rate of one to one and one-half gallons to the mile.

Some of the APC crewmen said their carriers should have more speed. But others believe the men would not have made this complaint if they had not been trained first with the M75 which is a bit faster. It was their belief that the M59 has all the speed that would be needed in combat. It is said to have a top speed of 32 miles an hour, while the speed of the M75 has been reported to be 44

Infantry, dismounted from APCs, move to secure ridges overlooking the pass into Death Valley so that the task force could move through safely

Robert Phillips from Black Star

An armored infantry company moves forward to secure a summit overlooking a pass through which the task force passed.



Robert Phillips from Black Star

miles an hour. The general feeling was that the M59 is a more comfortable and efficient vehicle to ride in than the M75.

"They are a pretty efficient vehicle," said Captain Rolland McMillan, Company C, 510th Armored Infantry Battalion. "They get you where you're going, and the maintenance problem on them was no greater than on any other tracked vehicle. They go wonderfully up hill. They have got plenty of power if the drivers keep them wound up."

The M59 is wider and lower than the M75 and Captain McMillan said he runs his company out of his carrier. By being able to sit alongside the driver, he added, he can watch the speed and better supervise him.

There were a few breakdowns among the tanks and the APCs, most of them due to the abrasive desert dust. The task force had put 850 gallons of fresh oil into the vehicles when it started. When it reached its final bivouac it ordered 1,500 gallons more for a complete change.

THE force had several days to wait for shot day and it used them to overhaul equipment. But as the shot was postponed night after night from 26 April the men of Task Force Razor experienced a lot of tough field soldiering. They were in pup tents the night of April 25-26, when a gale with hurricane gusts up to 81 miles an hour struck the area and blew down 115 squad tents in Camp Desert Rock. But as the delays continued squad tents were brought in for the task force.

The motto of the Armored Center is: "The Combat Arm of Decision." That may well be. It is good for every outfit to feel it is the best. But Task Force Razor's experience doesn't mean the United States Army is going to convert its infantry divisions into armor. There are many places in the world where armor might not be the best weapon. The infantry division may get armored carriers partly as a result of Apple II, but it will still be infantry.

Task Force Razor's experience is a stimulant to Army leaders who think hard about ways to make the Army more mobile. They are already experimenting with three types of Diesel engines for tanks, with the idea of giving them more range with less fuel. We have the M59 and the M75, and experiments are under way with other armored carriers.

One objective in current Army thinking is to put as much of the Army on tracked vehicles as the terrain will permit. One idea is to get a poor man's M59, perhaps in both wheeled and tracked versions, for general use in the infantry regiment. From the desolation of Yucca Flat ideas like this are already blossoming.

THE MONTH'S READING

We Need Ready Forces

ADMIRAL ARTHUR RADFORD
Address Before Aviators' Post No. 743, American Legion, New York City
11 April 1955

When I use the term airpower, I usually mean it in its broadest sense. I mean it to include the Air Force, Naval Aviation, including Marine Corps, Army Aviation, our tremendous aircraft industry, and our air transportation systems.

I also mean it to include our communications and electronics industry; our construction, chemical, and metals industries; our fuel, rubber, and steel industries; and every other industry which contributes to the development and maintenance of airpower. Each element has an important role.

And last, but by no means least, I include that all-important factor: "the air-mindedness" of you, the American people. . . .

Because of that, the United States needs Armed Forces which are varied in their nature and employment, and as invulnerable to surprise attack as we can make them. We will not commit an aggression, but we must always be ready to defeat one. Therefore, we need ready forces which can answer aggression with whatever forces are best suited, anywhere and any time it is necessary for our defense.

Accordingly, we have sought to design a pattern for our Armed Forces which will give us just such a military readiness—a sturdy but flexible combination of land, sea, amphibious and air forces. And within this pattern, our military forces are prepared, if necessary, to use nuclear weapons.

But this does not commit us to sole reliance on nuclear weapons. Planes that can carry atomic bombs can also carry conventional bombs. In other words, emphasis is on the ability to apply quickly whatever force is required to stop any kind of aggression where it starts—at its source—before it can expand into a global war.

What Is Militarism?

C. J. BERNARDO & EUGENE H. BACON
American Military Policy
The Military Service Publishing Co., 1955

Many people have long opposed a strong military force for fear "the military" would exert a dangerous and baneful influence upon our institutions. The specter of militarism has been one of the most potent influences in blocking the strength and development of our armed forces. Actually, our military chieftains have never disputed their subordination to civil authority and have been zealous guardians of our most cherished beliefs. The military also have been accused of possessing a "caste system" of which West Point and Annapolis are cited as glaring examples. Presumably under a "caste system" only West Point graduates could hope for rank and preferment in the Army, but neither Leonard Wood nor George Marshall were graduates of that famed institution. It is also interesting to point out that those military leaders who became President were most conscious of the demarcation between civil and military authority, and scrupulously adhered to this line of policy.

Perhaps the factors which are really objected to are the military concepts of responsibility and authority without which no military organization would be worthy of the name. The military services have been pointed out as undemocratic, but what other institutions have gone so far and so fast in the problem of racial integration? Far from being antagonistic or a threat to democracy, the nation's armed forces are one of its principal bulwarks and inspirations.

The tremendous cost of our military establishment is indeed a severe drain on the country's economy and in the course of years the cries of the purse-conscious will fill the air. Economy is desirable and laudable, but not at the expense of our national security. The country is faced with a unique situation in the Cold War, a position that calls for patience, fortitude, and the long view. Victories perhaps may be few, sacrifices many, but the rewards great if America retains her strength, courage, and determination.

Security in Europe

RAYMOND ARON
The Century of Total War
The Beacon Press, 1955

The West has the resources necessary for winning a total war if it should come; still more, therefore, has it the resources for re-establishing the balance of armed forces in time of warlike peace, and at the same time for diminishing the risks of an upheaval. The whole question is whether the democratic countries will have the courage to endure the sacrifices and efforts of semi-mobilization before the enemy legions move.

The world is living in a limited war. A semi-war requires semi-mobilization. Intercontinental equilibrium dictates additional duties. We must resign ourselves either to losing valuable territories in the early weeks of fighting, or to keeping up a sufficient number of divisions in time of peace. . . .

Semi-mobilization will not make it certain that aggression will be repelled. It is always to be feared that the Continental empire may accumulate, in a given sector, forces superior to those on the defensive side. The difficulty of resistance becomes for defeatist writers a motive for

passivism—an attitude that is literally absurd. An army of fifty divisions would not assure absolute safety in Europe. Indeed, it may be asked if anything of the sort ever exists in military affairs. But it would change the general strategic situation, reduce the probability of Soviet aggression, and contribute to the restoration of confidence in Europe.

The United States is learning that great powers must maintain their army, navy, and air force, and not disband them immediately following victory. For the present, American divisions must remain in Western Europe in order to fill the void created by the Second World War. But intervention would be of no use if the European countries remain definitely out of play and resign themselves to accept a precarious security from American protection and to suffer the invader's tyranny when the release of limitless violence bursts through the dams. In the long run, it is the work of Europeans to fill the European void. If they do not decide to do it, one day or another the United States will resign itself to a strategy of intercontinental war—in reply to European defeatism,.

Engineer as Manager

DR. JOHN BELL RAE
Speech to the American Society of Mechanical Engineers
20 April 1955

There is another role of the engineer to which I wish especially to call attention. I am engaged at present in a study of the Engineer as Business Man in the United States, and one significant factor which has emerged is that during the last half-century there has been a steadily increasing flow of engineers into positions of executive responsibility in industry. In fact, while I do not yet have complete data, the evidence indicates that the present-day engineering graduate has about one chance in two of moving into management. I suspect that a similar trend, although on a smaller scale, exists in government.

What this means is that the engineer is not only the creator of technological change, but to a constantly greater degree is also the person who has to decide what to do about it. Here is both a responsibility and an opportunity of the first order.

A UN Legion?

CLARK M. EICHELBERGER
UN: The First Ten Years
Harper & Brothers; 1955

Resistance to aggression in Korea is one of the most important steps in the development of the United Nations. It marked a new point in history, for many nations demonstrated that collectively they could and would resist aggression. At the same time many lessions are to be learned from the United Nations first effort of this kind. . . .

Provisions for joint financing of contingents from countries unable to pay and train them should be worked out now. Ambassador Lodge is the authority for the statement that the United Nations could have had more troops in the field in Korea had it been willing to provide for their training and equipment when necessary.

A new military staff committee should be provided for. It must be sufficiently flexible to represent at any time those nations contributing troops or facilities to United Nations resistance to aggression. It should be able to appoint the Supreme Commander and assess the political consequences of his military acts in the field. It should serve either the Security Council or the General Assembly, whichever body authorizes resistance to aggression.

The United Nations should follow the suggestion of the Government of the United States and study the feasibility of a United Nations Legion. It should go further and establish this Legion.

This Legion, made up of men enlisting directly and wearing the uniform of the United Nations, could be rushed to any scene of potential or actual fighting. In most cases its presence might be sufficient to maintain or reestablish peace. Few nations would dare fire upon a United Nations army composed of young men who have enlisted from practically all of the United Nations member states. Any aggressor attacking such a force would not only be firing upon the collective symbol of the world community, but he would be firing upon citizens of practically every nation.

Masters of War

HAROLD LAMB
Tamerlane: Conqueror of the Earth
Bantam Books, 1955

Timur [Tamerlane], in common with Genghis Khan, had that strange genius for war that made them appear supermen. Much as we study the campaigns of a Caesar, the exploits of a Hannibal, or the inspired strategy of a Napoleon, upon reflection it is becoming clear that these two conquerors from Asia are, with Alexander, the masters of war upon the stage of the world. Their feats of arms may have been duplicated by others in miniature, but never upon the earth as a whole. Genghis Khan remains today a good deal of a mystery, and there is much in Timur that we cannot understand. Did Genghis Khan have a profound plan for the conquest of the world, or was he an inspired barbarian? We only know that he was wise, with a wisdom that proved terrible to the world we live in. And we can measure Timur's mighty achievement and ponder it, and still search in vain for the secret of his success.

Alexander we understand; he was the son of Philip of Macedon, heir to a mighty army, and in his conquest he swept without check over the area opened by the Persian empire that preceded him and which he overthrew. But between us and these two warriors of Asia there is the veil of distance and the strangeness of another world.

Some things we can say with assurance. Like Alexander they had immense endurance and a driving energy that would check at nothing. There the similarity ceases. Genghis Khan was patient, Timur impetuous; the great Mongol directed his campaigns from his headquarters, after his early years, but the lord of Samarkand could usually be found upon the scene of action. The nomad of the Gobi shared his responsibility among ministers and generals; the Tatar leader accepted all responsibilities himself.

Helicopter or

The H-19 is an efficient work horse for short-distance missions

The latest light aircraft are giving the helicopter a run for its money when it comes to performing Army aviation missions

LIEUTENANT COLONEL FRANK G. FORREST

THE helicopter has caught the imagination of both the general public and the military. Able to rise and descend vertically, it appears to be an ideal vehicle in modern warfare. Nevertheless it seems unlikely that the helicopter will soon replace fixed-wing aircraft as the best method of moving numbers of troops by air.

The airplane is easier and less expensive to produce, operate, and maintain. Its principal disadvantage is that it needs prepared landing fields. But the aviation industry is now on the threshold of developing a plane that can take off and land without a runway. We do not yet have engines capable of developing enough thrust to get a troop transport off the ground from a vertical position, and aircraft designers are concentrating on the development of a conventional airplane that uses other methods to be able to take off and land with no ground run.

There are three approaches to this problem, all of which are aimed at developing lift with a minimum ground run. The first is to use engines that have a large horsepower-weight ratio and large propellers that will produce great thrust.

The second is to move air at a speed great enough to develop lift, while the wing remains stationary in relation to the ground. This may be done by installing engine-driven air pumps in the wings. The pumps will blow air from the leading edge of the wings and suck it in at the trailing edge.

The third approach is to provide the wing with high-lift devices, such as slots and flaps. Large flaps that deflect the air that passes under the wing 90 degrees downward will create additional lift. The flaps would be used during landings and take-offs, and could be retracted during level flight.

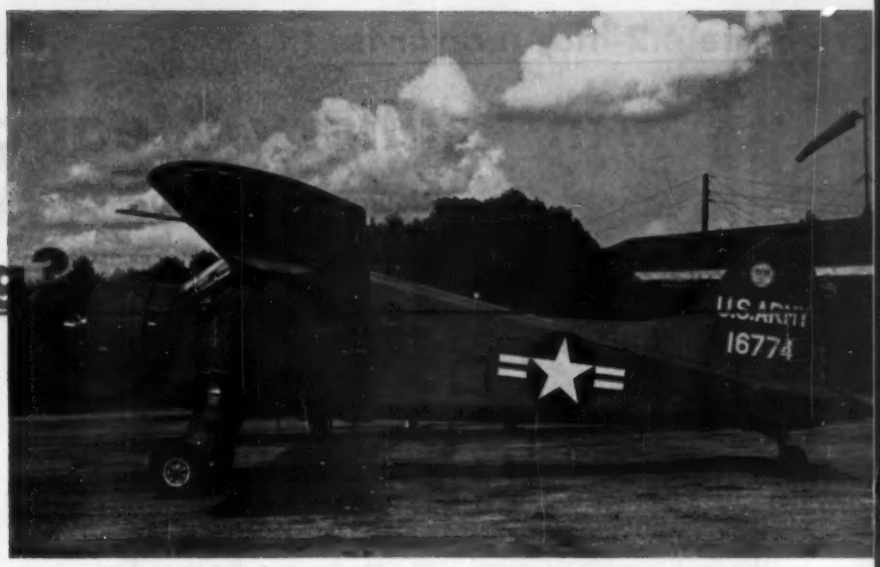
Several aircraft manufacturers have designs for large transport planes that will take off after a very short run. De-Havilland of Canada today produces the DHC-3 light transport, which can take off and land fully loaded in distances only slightly more than those required by the Army's light L-19.

ANY comparison of the ability of the airplane and helicopter to perform the Army's transport mission must take into account the factors of availability, cruising speed, and cost of production and operation.

Under field conditions helicopter availability today does not exceed 66 per cent, while aircraft availablity can be kept as high as 90 per cent. Helicopters are difficult to maintain, since they are more complex than airplanes and have many more moving parts. Parts do not last as long. Although helicopters will be simplified and improved in this respect, it seems likely that fixed-wing aircraft will always be easier to maintain and will have a higher availability rate than helicopters.

Today's helicopters cruise at less than 100 mph. This will be increased

Fixed Wing?



The Canadian-built L-20 outperforms the H-19 on missions of over 40 miles

in the future, but helicopter speeds are limited by retreating blade stall at high forward speeds. It is estimated that large transport helicopters will have a maximum cruising speed of 175 mph, while airplanes of the same class will cruise at up to 300 mph.

During 1954 the Army conducted tests to compare the transport performance of helicopters and airplanes. The H-19 and L-20 were used, and it was found the helicopter had a higher ton-mile per hour capability at distances of less than forty miles, while the airplane was superior on flights of over forty miles. The helicopter outperformed the airplane at short distances because it required less ground time for loading and unloading. An airplane that is specifically designed for rapid loading and unloading would be likely to compare favorably with the helicopter even at short ranges. If delivery were made by air drop, the airplane would also have a decided advantage.

These tests also showed an enormous disparity between the cost of operation of airplanes and helicopters. The overall cost per ton-mile was 42 cents for the L-20 and $5.30 for the H-19. The L-20 was more economical in fuel and oil, parts expended, and man-hours of maintenance. The L-20s needed $285 of parts, while the same number of H-19s, used over approximately the same number of ton-miles, needed $36,914.30 for this item. It is likely that costs will decrease when helicopters are improved, and that future airplanes with zero-run take-off capabilities will cost more to produce, operate, and maintain; but the advantage will remain with the airplane in the foreseeable future.

Fixed-wing aircraft have other advantages. They have higher payload-gross weight ratios than helicopters. In the event of war, they could easily be flown to areas where they were needed, while helicopters, needing more fuel, would in many cases have to be shipped by surface transportation.

IF the fixed-wing aircraft can meet the requirements for taking off and landing on unprepared fields, it should become the primary aircraft used by Army transport aviation units. In many instances a helicopter-type landing and take-off will not be needed, because ground troops will have secured fields and pastures on which planes can land.

At the present time, however, only a small fraction of the Army's transport aircraft should be fixed-wing airplanes. As more adequate airplanes that are now in the early development stage become available, the percentage of helicopters used should become lower. This should be especially true in the case of high-payload aircraft.

An agreement between the Army and the Air Force, stated in SR 95-400-5, allows the Army to procure and operate helicopters of any size but limits Army fixed-wing aircraft to those having an empty weight of under 5,000 pounds.

If airplanes can be produced that have the same capabilities as helicopters, but which cost one-fourth as much to purchase and operate as helicopters of the same payload class, it is clear that this agreement should be modified. It is suggested that the Army use fixed-wing transport aircraft of any weight, which are capable of developing induced lift equal to at least twenty-five per cent of the gross weight and are capable of becoming airborne in a ground run of not more than one hundred yards from a sod field.

Such a plane would have the greatest possible payload-gross weight ratio, but its fuel load would be small and its range comparatively limited. Nevertheless it seems unlikely that the helicopter will completely replace fixed-wing aircraft as the best method of providing air transport for the maneuver and supply of forces in the combat zone.

The 4.2-inch mortar is

An Artillery Weapon Now

Lieutenant Colonel Dean E. Painter

THE 4.2-inch mortar was originally conceived as a Chemical Corps weapon, later it was adopted by the infantry as a regimental heavy-support weapon, and now it is a field artillery weapon. The Artillery School is now developing new T/O&Es and techniques for the use of the 4.2 in an artillery role.

The capabilities of the 4.2 may be better understood by comparing it with the 105mm howitzer. However, this comparison is not intended to suggest that the 105 replace the mortar.

The mortar's simplicity means savings in time and money. Its cost is approximately $2,000, while the towed 105mm howitzer costs approximately $15,000. A round of ammunition for the 4.2 costs about $1.50 less than the cost of a 105 projectile.

Tactically, the mortar is capable of being emplaced in deeper defilade because of its high angle of fire. It is easier to conceal and camouflage than the howitzer, but unlike the howitzer it is incapable of *direct* fire. The mortar's light tube gives us a weapon weighing 670 pounds, while the towed 105 weighs 4,980 pounds. The mortar may be broken down into six major component parts, each weighing 162 pounds or less. A two-round box of mortar ammunition weighs approximately 40 pounds less than a two-round box of 105 ammunition.

The mortar can be hand-carried for short distances, towed by its crew on a light handcart, or towed in a quarter-ton trailer by a quarter-ton truck. It may be packed on four mules, or mounted in, and fired from, a self-propelled armored vehicle. The 4.2 is suitable for an airdrop, helicopter lift, or amphibious assault.

RECENT studies of the 4.2's lethality and accuracy indicate that observed fires upon targets most suitable for attack by mortars favor the 4.2 over the howitzer by a ratio of 1.5 to 1, increasing to 5 to 1 as the size of the target increases. High angle of fall of the projectile and greater bursting-charge-to-weight ratio of the ammunition also contribute to lethality.

The rate of fire of the mortar is higher for short periods of time. Some combat reports indicate the mortar projectile has a greater surprise effect on the enemy than a round fired from a gun or howitzer.

On the other hand, the 4.2 has several drawbacks. Its projectile has a longer time of flight than that of the 105 fired at low angle. Range dispersion is approximately double, but maximum range is only about half that of the howitzer. But these disadvantages diminish considerably when the performance of the mortar is compared with the howitzer's high-angle fire, The relative inaccuracy of the mortar is caused partially by the general looseness of its parts, each of which can be hand-carried. An artillery mortar that is towed or mounted on a vehicle would not need to come apart so readily, and could be assembled more tightly.

The sight is too fragile to remain on the weapon during firing, so it must be removed before each round is fired. The sight does not have a mil-graduated reticle or gunner's aid. There is no provision for handling site in conjunction with the elevation quadrant, which is a component part of the sight. The clumsiness of the traversing and elevating mechanism reduces the speed and accuracy of firing.

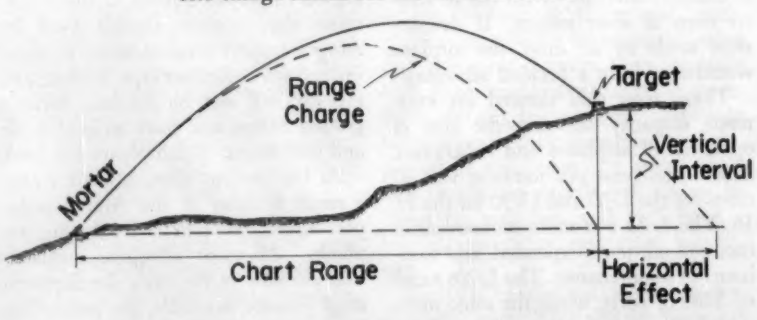
There are other drawbacks to the mortar. The preparation of the propelling charge is a difficult and slow process. The base ring is subject to damage in rocky or frozen terrain. Since only the muzzle end of the mortar barrel is open, removal of misfires is difficult.

The boresighting system is complicated by inability to see through the barrel of the mortar from end to end. The combination aiming circle and distant-aiming-point system of boresighting is time-consuming, since an aiming circle must be set up in rear of each mortar and a visible distant aiming point is needed.

Two major departures from artillery gunnery procedures are required when firing the 4.2: the mortar is fired with a constant elevation and the charge is varied to obtain range charges. The vertical interval between the tube and the target is converted to a horizontal range effect, based on the angle of fall and expressed as a site charge. This site charge, which appears on the ballistical data scale of the GFT fan, is added to the range charge correction corresponding to the chart range as read from the GFT fan. The sum of these two charge elements is the charge which should be fired (*see sketch*). Mortar ballistical scales have been developed which may be fitted over the 105mm howitzer ballistical scale for use with the GFT fan.

PRESENT field artillery observer procedure is suitable for mortars. These mortar gunnery methods have been field-tested at Fort Sill and found to be satisfactory. Additional firing and tests, particularly during student service practices, will be conducted to determine the accuracy with which a unit can mass its mortars on a target.

Site charge sketch for the 4.2-inch mortar



CEREBRATIONS

Morale by Mail

THE Army has already taken over many of the procedures of the civilian world of business. A selling technique widely used in this country today is direct-mail promotion; the Army would be wise to adopt it.

Business firms, both reputable and unsavory, pay vast sums annually to obtain what are inelegantly called "sucker lists." Every time you put your name on a business transaction, go to a hospital, get a library card, father a child, or in any way show that you have a particular "interest," your name, address, and interest are snapped up by a professional name spotter, who peddles this information to a mailing-list agency. The agency in turn sells lists of names to companies that can profit from the interest.

For example, if you register your wife at the maternity ward of a hospital, a firm that sells babies' clothes or high chairs gets your name and begins sending advertising and prospectuses directly to you. This selling method evidently pays off, for name-peddling is a lucrative business for thousands of people.

Every time a new draft levy registers at a training center, the Army receives a free list of names and addresses of parents or next of kin. The Army should use this tested technique to sell itself to these people, whose major "interest" is their inducted sons. Let's allay their fears and enlist their aid in a cause they will support instinctively.

The present PIO releases to hometown newspapers should be supplemented by a direct-mail sales program —a colorful, appealing letter, addressed to the parents by name and actually signed by the CO of the draftee's training company. It should be written at Pentagon level, so that it reflects current DA and DOD policies, and distributed to training units for transmittal to the parents. It should be eye-catching but not whimsical, complete but not verbose, grammatical but not high-brow. In short, it should neither insult a Ph.D. father nor be over the head of a lady-wrestler mother.

The letter would cover the following topics: length of the training; a list of basic-training subjects; identification of the letter-writer; description of military discipline; policy of the U. S. to build a team, not an unfeeling military machine; the right and duty of the citizen to bear arms; military training fits the soldier to be a better citizen afterwards; off-duty facilities, such as service clubs, chapels, hobby shops, movies; physical conditioning and care, including training courses, examinations, sick call, bed check; the part parents must play in influencing the soldier to have sober habits in regard to religion, sex, drinking, and general behavior; an invitation to the parent to call on the writer if he has any questions or trouble; and a note that the writer has the same military mailing address as the trainee.

This letter would stress the idea that the Army man comes out a more solid citizen, rather than "join the Army and learn a trade." We are submitting a completed version of this letter through the DOD suggestion-program channels, in the belief that this practice would help bring the Army the enthusiastic support of millions of civilians.

MAJ. JAMES W. KERR
CAPT. THOMAS G. McCUNNIFF

This department is designed to accommodate the short, pithy and good humored expression of ideas—radical and reactionary, new and old. We pay for all contributions published but you deserve to be put on notice that the rate of payment depends upon the originality of the subject and the quality of writing rather than length. This department is hungry for contributions, so shoot that good idea in . . . today.

Aiding a General

MOST soldiers seem to believe that the primary duties of an aide are to help elderly ladies to the dinner table, supervise cocktail parties, and be a social ornament, resplendent in aiguillettes and special evening dress. Aides do these things, it is true, but it is too often forgotten that they are also staff officers on the general's personal staff.

The aide's job is to supervise and monitor those things which personally concern the superior he serves, leaving the other staffs free to perform their special duties. He must organize the other members of the personal staff into a smooth-working team which will perform the routine work of running the general's affairs. In Korea it was found useful for generals to have two aides, one concerned with operations and the other with administrative matters.

The operations aide travels with the general and arranges his personal affairs. He understands the picture in the field and keeps notes while on the road. His most important duty is to tip off subordinates as to what the general said, did, directed, or commented.

When one corps commander's operations aide reported for duty in Korea, he spent four weeks in the plans section of G3 and another two weeks in G4 before he was permitted to assume his duties. He became thoroughly familiar with the combat history of the corps. He worked on operations orders and plans, terrain studies and estimates. He knew every unit in the corps, its location, something of its history, and its key personnel. He spent several days on the MLR familiarizing himself with the terrain, units, and people. The

things he learned in those six weeks proved invaluable in the months that followed.

Important people are always visiting combat headquarters. Invariably they want to visit the troops in the forward areas. The operations aide has to plan their schedule in the most minute detail to minimize the possibility of injury. Artillery may be required to be lifted, or to smoke or neutralize known enemy OPs or gun emplacements while the party slips down a valley in a jeep or helicopter. The plans have to be coordinated and rehearsed for time-and-distance factors, road guides, guards, and escorts, and the aide de camp is the man who does this job.

Other important duties of the operations aide are to keep the general's journal and situation map. The journal is an extremely important item showing places, persons, and things that concern the general personally. Since it becomes a part of the unit's permanent history, it must be prepared with great care.

The general must have someone who is more or less removed from the chain of command, on whom the general can test his ideas and occasionally vent his anger. The aide must be a loyal companion to the general as well as his personal staff officer. There has to be someone to trim the boat and to bridge the differences in rank in order to keep the general aware of subordinates' ideas and opinions that they are reluctant to give themselves.

Let us now turn our attention to the administrative aide. His is the unglamorous job. He is responsible for personal correspondence, suspense file and follow-up, liaison on assignments in which the general is personally interested, and coordination of the general's personal public relations. He reviews the general's directives and follow-ups on directives from higher authority.

The aide should prepare acknowledgments of all letters which are sent directly to the general, and he should indicate to the writer what is being done with his letter. These acknowledgments should accompany the general's mail when he receives it. Each letter should be covered with an appropriate routing slip to the staff agency concerned.

One good system for handling correspondence is to make a file of model letters, including thank-you notes, letters of condolence, appreciation, discipline, recommendations, congratulations, and the like. The model file should also contain a copy of everything the general has written or drastically rewritten, so that his work will be reduced the next time the same thing comes up.

Generals often receive personal-type letters and sign the answers in the same way. Yet the whole subject is official and the correspondence should be available in the official files of others who have to handle the same subject. If such correspondence is buried in the general's file, an important policy statement is likely to be hidden from those who need it. The aide should see that all such correspondence passes into the proper channels and is not allowed to be hidden in the general's personal files.

The administrative aide should establish a suspense file and follow-up on personal correspondence and any other matters in which the general has taken a personal interest. When the general initiates an action, he expects to be given progress reports until it is completed. The aide keeps his eye on these reports and their due dates and needles the boss when there are laggards.

The aide should review the general's correspondence to insure that it is polite but concise and that it contains simple, direct language. The important thing is to see that the facts are stated precisely. For example, it is much better to say, "Paragraph 3, SR 100-3-5, 1 August 1952, states in part . . ." than "In a recent directive. . . ." The subject should be boiled down to essential *verified* facts which can be stated in simple English or in a chart or table. When you are satisfied that all the information is there, it is ready for the boss.

It is the aide's job to screen the papers that the general signs. Many persons make their superiors appear pompous and absurd by the things they send him to sign. The court of last appeals is the aide, who can eliminate many unnecessary papers and insure that what is signed is courteous and in good taste.

All generals have to make speeches and write articles, but someone else has to come up with ideas and facts around which the speech can be built. The aide supplies the facts in brief form and the general inserts the adjectives and gives it his special polish. The fact sheet should include this information: composition of the audience; interest of the audience; local color; historical data on the locality, organization, or event (that is, the occasion for the speech); names of important persons in the audience who should be mentioned; time of day of the speech or event; whether there is TV, radio, newspaper coverage; what immediately precedes or follows the speech (that is, lunch, parade, unveiling of new equipment, and so on).

When the general is required to participate in a formation or ceremony, he should be briefed on his part in the performance *immediately* before he goes on stage. The aide has to give the general his cues or make sure someone else does, so that he does not look foolish or conspicuous by having to perform a complicated part without rehearsal.

Trips should be organized with painstaking care. It is usually better to arrive a little late than early. No one expects the general to be too early, so the aide should calculate carefully the time required to make the trip. The highest-ranking person gets into vehicles and aircraft last. The aide has to take charge of things and herd the junior members on board, since there is a common tendency to hang back and hold open doors until the general is all settled before juniors take their positions.

In planning a visit, the aide should never let anyone tell him: "The dinner starts about 1930, but any time the general wants to arrive will be all right." That simply means that the dinner probably won't start until 2030 and most guests will arrive about 2015. The aide should pin the host down to the most minute details of arrival and departure times.

It can be seen that a wide range of responsibilities fall to the aide. This very special staff officer has a fascinating job and is an important member of the Army team. He must adapt his talents to the peculiar requirements of his general, but at the same time he must seize the initiative in the job as any general staff officer does, making his presence felt in an equally responsible way.

CAPT. JOHN R. THURMAN

Use the Gunner's Badge

WHAT has happened to the expert gunner's badge so coveted in the "Old Army"? Between World War I and World War II artillerymen wore

the expert gunner's badge with the same pride that the infantryman wore his expert rifleman badge. Since then the chests of many of our professionals have been covered with ribbons for bravery and service, but these ribbons do not necessarily denote proficiency with the wearer's primary weapon. The Quartermaster catalog still lists the gunner's badge, but it is now rare to see a man wearing one.

AR 600-70 states that qualification badges are awarded in recognition of attainment of a high degree of skill and proficiency in tests, competitions, and performance of duties. The basic qualification badge is awarded to indicate the highest qualification which a soldier has attained in a record course.

In small-arms qualification, an appropriate bar is worn with the badge to show the type of weapon with which the wearer has qualified. In the gunner's qualification, unit weapons are not individually designated, and the basic bar is inscribed with the words "Field Arty." Expert indicates expert gunner, sharpshooter indicates first-class gunner, and marksman indicates second-class gunner. The AR further states that to be eligible, the soldier must attain the qualification score prescribed for his weapon by current Army directive.

With one exception (the 75mm pack howitzer), the current field manuals covering service of the piece for the various artillery weapons prescribe the tests to be given in the qualification of gunners and specify qualification scores. A revised version of the field manual for the pack howitzer will include gunners' examinations and scores. The purpose of the tests is to determine the relative proficiency of the individual artilleryman in the performance of his duties as gunner. Minimum scores required for qualification are 90 for expert gunner, 80 for first-class gunner, and 70 for second-class gunner.

Commanding officers of regiments, groups, and separate battalions, and any commanding officer in the grade of lieutenant colonel or above may make the awards. The badges may be worn on the coat of dress and semidress uniforms, on the service jacket, or on the shirt when it is worn as an outer garment. Badges are not worn when the soldier is dressed for combat or simulated combat.

The number of expert gunner badges won by a unit might be a better indication of morale than some of the "morale indices" now used. Badges are visible testimony of performance that measure individual proficiency, the training of an organization, and the degree of emphasis that is placed on fighting skills.

LT. COL. DEAN E. PAINTER

RHIP but Not Many

THE Russians recently promoted a dozen more of their military leaders to Marshal's rank, the equivalent of our five-star grades of General of the Army, Fleet Admiral, and General of the Air Force. The American armed forces now have no one on actual active duty in these grades. Our top military men—the Chiefs of Staff of the Army and of the Air Force, and the Chief of Naval Operations, and even the Chairman (a sadly unmilitary title) of the Joint Chiefs—all have only four-star rank although they frequently deal with Marshals and Fleet Admirals who hold similar positions in less powerful countries.

General Gruenther, as Supreme Commander Allied Powers Europe, has under him Field Marshal Montgomery and a varying number of officers who have similar rank, such as Marshal of France, for example. (It is possible that our five-star Army and Air Force officers would have been called marshals had it not been for the fact that the senior to be given that rank during World War II was named Marshall. Incidentally, only the rank of Marshal of the Royal Air Force is the equivalent of the top ranks in the British Army and the Royal Navy; Air Chief Marshal, Air Marshal, and Air Vice-Marshal correspond, respectively, to four-, three-, and two-star generals in our Air Force.)

Officers given responsibility but denied appropriate rank are put in the position of appearing, particularly to foreigners and sometimes to American subordinates, to be under test and not quite established in their jobs.

This fear of rank as such is not a new American failing. The Union Army, in marked contrast to the Confederate Army, often withheld table-of-organization rank from its commanders. At the end of World War II, four of our ten army commanders were still lieutenant generals, and all of our army-group commanders and many of our corps and other lower-level commanders were not given the rank which they had earned. In 1954, Congress gave ten of the World War II lieutenant generals a thank-you-this-doesn't cost-us-a-cent promotion to four-star rank, too late to do any of them much good and definitely too late for the four who were dead.

Does this affect junior officers of our armed forces? Of course, it does. They are not likely to be impressed by the standing in this country of a career where the men having the literally awful responsibilities of the top positions are not given rank commensurate with their counterparts in the rest of the world.

MAJ. GEN. H. W. BLAKELEY

Artillery Gadget

A FREQUENT problem for the S3 of an artillery unit is how many rounds, what fuze, and what type of ammunition he should use on a given target. In a fast-moving situation, he has to make a split-second decision, in order to neutralize the target effectively without wasting ammunition.

Could not a gadget be devised that would solve this problem? Something, perhaps, on the order of the multi-colored, circular slide-rule-like device that many camera addicts use to get a proper time setting and lens opening for existing light conditions and the nature of his target.

Such a gadget for the S3 who is torn between his desire to blast the enemy and to honor an ammunition allocation, would be priceless. It might have two wheels, one inside the other. The outer wheel would contain many normal artillery targets, such as men in the open, men in foxholes with overhead cover, various emplacements and vehicles, smoke screens (here the solution arrow would point to certain number of rounds to keep the screen effective over a given area during a given amount of time). The inner, smaller wheel would contain an arrow and a window. When the arrow is set on the target desired, the S3 will be able to read the solution through the window, in terms of number of rounds, fuze setting, and type of rounds. There would be a different wheel for each type of weapon. The gadget would not have to be circular; it merely needs two moving faces that match up. A good deal of research would have to go into getting the data necessary to construct the gadget, but it would be an invaluable aid to the S3 when he is in a hurry.

LT. COL. EDWARD M. FLANAGAN, JR.

IRONS IN THE FIRE

Uses for Radioactive Wastes

Gamma radiation, the deadly product of radioactive substances, may soon be used for the sterilization of sewage, the Corps of Engineers' Research and Development Laboratories have announced. Waste products from atomic power plants can be used for this purpose without leaving residual radiation in the treated liquids. Gamma rays can also be used to sterilize certain drugs and antibiotics that are harmfully affected by heat, to preserve meat and other food by killing the bacteria that cause spoilage, and to decrease the number of bacteria in swimming pools without using chlorine.

Combat Transport

Lockheed Aircraft Corp. has announced that its C-130A Hercules "combat transport" is now in quantity production for the Air Force. The C-130A can lift a 155mm howitzer and its 13-ton tractor or 92 fully equipped combat troops. The plane weighs 54 tons and its four Allison T-56 turbines develop 15,000 horsepower. The entire 95-foot fuselage is heated, air-conditioned, and pressurized. It needs a take-off strip of only 800 feet and can land on unpaved strips of an even shorter length. The C-130A can fly safely at low altitudes and speeds for air-dropping troops, equipment, and supplies, or it can be used for long-range flights at high speeds. It has a wingspan of 132 feet, and its tail is 38 feet high.

Pilotless Plane

Ryan Aeronautical Co. has disclosed that the Firebee jet target drone has potential uses as a guided missile and for reconnaissance. The Department of Defense also has authorized disclosure of the specifications of the swept-wing pilotless plane, which was designed for antiaircraft gunnery practice. It has a maximum speed of 605 m.p.h. and a ceiling of 42,500 feet. The Firebee is 17 feet 3 inches long, and has a wingspan of 11 feet 2 inches. Its production cost is approximately one tenth that of piloted aircraft converted to drones. It also has a parachute recovery system.

For guided missile use, a warhead could be carried in the fuselage or in pods slung beneath the wing and mounted on the wing tips. For aerial reconnaissance, the Firebee could be equipped with aerial cameras, radar, Reconofax, and television installations. It could be catapulted from the ground, vectored over the target area, and brought back for parachute recovery. Its range could be increased by air-launching from a "mother" plane. A number of Firebees have been delivered to Army Ordnance for use as practice targets for the Nike guided missile and the Skysweeper antiaircraft gun.

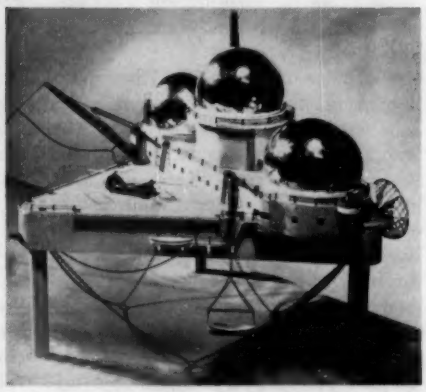
New Vaccines

The Medical Corps is working on new vaccines to combat influenza, measles, and RI-67, an acute respiratory disease common among trainees. The influenza vaccine promises to be a great improvement over the shots given currently. It will not require annual immunizations. The Army is also developing a portable machine for drilling teeth that will allow dentists to call on patients or to perform work in the field.

Supply Computer

An electronic machine, known as Bizmac, has been installed at the Ordnance Tank-Automotive Command in Detroit that will give accurate information on the state of inventories of parts. Reports from depots throughout the nation will be fed into the machine, and within minutes it will give the status of supply of any item.

Offshore Radar Base



A permanent, self-contained radar tower will be installed about 110 miles east of Cape Cod, Mass., this month, the first of a series of offshore warning stations to be set up in the Atlantic Ocean. It will consist of a triangular platform, with 200-foot sides, resting on three hollow 200-foot steel caissons. The radar base will generate its own electric power, and will house 50 to 70 men. In addition to three radar domes, there will be sick bays, recreational facilities, maintenance rooms, and a heliport. The tower was prefabricated by the DeLong Corporation and the Raymond Concrete Pile Company, under the direction of the Navy Department. It will be manned by Air Force and Navy personnel.

British Heavy Tank

The British Army in Germany is testing its latest, heaviest tank, the 65-ton Conqueror. Powered by a Meteor engine, it travels at 20 m.p.h. and carries a crew of four. The gun is stabilized both vertically and horizontally by electronic control.

New Shoes

The Quartermaster and Medical Corps have developed a new low-quarter dress shoe that will be used by all of the services. The new footwear uses a new system of interchangeable lasts and has reduced the number of shoe sizes from 235 to 113. The new shoes will be issued when present stocks are exhausted.

Mobile Crane

The Navy recently demonstrated a mobile crane capable of lifting a four-engine bomber and moving it around. Nicknamed the Monster, the MB-1 mobile crane will be used for removing disabled aircraft and for inspecting landing gear. The crane weighs 45 tons and has a lift capacity of 40 tons. It was built by the LeTourneau-Westinghouse Co.

Distilling Sea Water

An economical method of distilling fresh water from sea water has been discovered by Britain's Royal Naval Scientific Service. A new compound, one of the polyethylene glycols, introduced into evaporators of existing design, prevents scalding and the formation of foam, prolongs the operating life of an evaporator five times, and increases its efficiency by about 30 per cent. With the new compound, fresh water can be made from sea water on board ship at a cost of $1.68 a ton, as against $2.52 a ton by the old method. This should save the British Navy approximately $1½ million a year.

Electrical Radiation Device

An improved device for checking instruments that measure radiation has been invented by a German-born Army private at Fort Benning. PFC Guenter Hagedorn, who came to the U. S. in 1953, is completing experiments on an electrical device that can align radiaometers with a one-percent margin of error. This previously had to be done with expensive radioactive substances, and the margin for error was 25 percent. Hagedorn's method, which requires no radioactive materials, promises to be safer and faster. The device could be manufactured easily, using parts normally stocked by the Signal Corps. It can align a radiaometer in five minutes and can be built into a compact battery-operated set about 3 x 8 inches for field use.

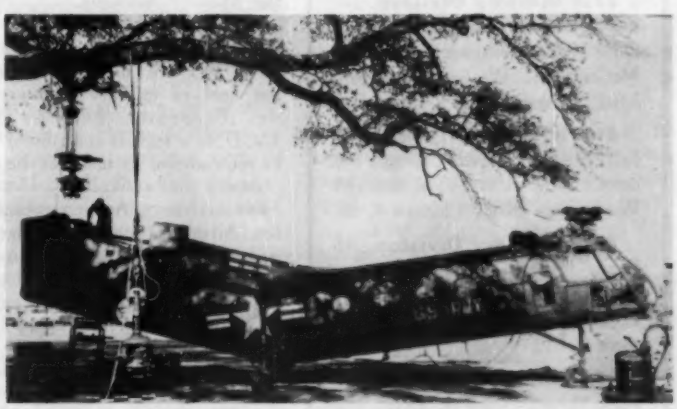
Two-Way Mobile Radio

General Electric has developed a mobile two-way radio capable of transmitting up to a 110-watt signal. Previously, the highest power standard mobile radio could transmit only a 60-watt signal. The radio, which operates in the 25-50 megacycle band, can be mounted under the dashboard or in the trunk of a vehicle. The new radio was made possible by the development of circuitry allowing the use of two GL-6146 tubes as final amplifiers in the transmitter and a new 640-volt dynamotor power supply. The radio's transmitter, receiver, and power-supply chassis are connected only by electrical cables terminated in standard plugs that can be quickly disengaged. The radio may be used on vehicles having either 6- or 12-volt DC systems without electrical alterations.

Arctic "Subway"

Army engineers will start construction work this month on an experimental 15-mile-long tunnel under the Greenland icecap, which will eliminate the problems of surface travel for men operating the U. S. air station in that region. The tunnel will be an average of 25 feet below the ground, but in some places will reach a depth of 100 feet. It will be 25 feet high and 12 feet deep, and it may eventually contain an electric railroad.

Quick Change for Helicopter



Troops assigned to CONARC Board 45 Detachment at Camp Rucker, Ala., recently demonstrated a novel field expedient for replacing the transmission of an H-21C cargo helicopter. The helicopter was placed under a limb of an oak tree, and a chain-fall supported by the limb was used to lift out the transmission, which needed overhauling. The helicopter was then moved under a new transmission suspended from a second chain-fall supported by another limb of the tree. The speed of the operation demonstrated that units depending on helicopters can preserve their mobility even when hangars with overhead hoists are not available.

REUNIONS

1st Armored Division. 1-3 July. Hotel New Yorker, New York City. For details write: Sal Marino, 215 Del Balso Blvd., Wappinger Falls, N. Y.

1st Infantry Division. 26-28 August. Congress Hotel, Chicago. For details write: Arthur L. Chaitt, 5309 Germantown Ave., Philadelphia 44, Pa.

3d Armored Division. 28-30 July. Jefferson Hotel, St. Louis. For details write: Paul W. Corrigan, 80 Federal St., Boston 10, Mass.

5th Infantry Division. 3-5 Sept. Hotel Benjamin Franklin, Philadelphia.

8th Armored Division. 1-3 July. Sheraton-Park Hotel, Washington, D. C. For details write: Henry B. Rothenberg, Suite 1300, 134 No. La Salle St., Chicago 2, Ill.

Ninth Army. 22-24 June. Treadway Inn, Coonamessett, Cape Cod, Mass. For details write: C. B. F. Brill, 202 East 44th St., New York 17, N. Y.

25th Infantry Division. 15-17 July. Warwick Hotel Philadelphia. For details write: 25th Infantry Division Association, PO Box 101, Arlington 1, Va.

37th Infantry Division. 2-5 Sept. Biltmore Hotel, Dayton, Ohio. For details write: Jack R. McGuire, 21 W. Broad St., Rm. 1101, Columbus 15, Ohio.

41st Infantry Division. 29-31 July. Sheraton Hotel, Chicago. For details write: Robert C. Keller, 175 W. Jackson Blvd., Chicago 4, Ill.

76th Infantry Division. 18 June. Hotel Commodore, New York City. For details write: Henry C. Evans, 6 S. Calvert St., Baltimore 2, Md.

82d Airborne Division. 1-3 July. Sheraton-Cadillac Hotel, Detroit. For details write: 82d Airborne Division Association, Sheraton-Cadillac Hotel, Detroit 31, Mich.

94th Infantry Division. 21-24 July. Hotel Bellevue-Stratford, Philadelphia. For details write: Anthony H. Mirra, Jr., 2810 Springfield Rd., Broomall, Pa.

THE MONTH'S AUTHORS

(Continued from page 12)

Fixed Wing?" page 46), is currently assigned to the G3 Section, Continental Army Command, Fort Monroe, Va.

MORALE continues to be a major concern of our cerebrators (pages 49-51). Three of the five articles in that department are aimed at improving that intangible quality, which in the last analysis is the deciding factor of how a man fights. The other two cerebrations concern themselves with the problems of a general's aide and with a gadget (not yet invented). MAJOR JAMES W. KERR, Infantry, has a degree in chemistry from Davidson College and in physics from New York University. He is an occasional contributor to the JOURNAL. CAPTAIN THOMAS G. MCCUNNIFF, Infantry, is a 1945 graduate of the Military Academy. CAPTAIN JOHN R. THURMAN, Artillery, was an enlisted man from 1942 until 1943. He graduated from the Military Academy in 1946 and completed the Artillery School Guided Missiles Course the following year. His article is based on his experience as aide to Lieutenant General W. B. Palmer. LIEUTENANT COLONEL DEAN E. PAINTER is mentioned elsewhere in this department. MAJOR GENERAL H. W. BLAKELEY, retired, a regular contributor, is presently on an extended visit to Europe, visiting many military stations. LIEUTENANT COLONEL EDWARD M. FLANAGAN, JR., Artillery, is at the Armed Forces Staff College, Norfolk, Va. He is a 1943 graduate of the Military Academy.

THIS month's book reviewers (pages 57-63) are men of experience in the field of military literature. COLONEL FREDERICK BERNAYS WIENER, JAGD, is a regular contributor who will be remembered by many as the author of "Lament for a Skulker." COLONEL R. ERNEST DUPUY, Artillery-retired, entered the Army in 1909. JOURNAL readers will remember him as the author of "Pass in Review," a retrospective look at the U. S. Army, which appeared in the Fiftieth Anniversary issue (October 1954). LIEUTENANT COLONEL ROBERT B. RIGG, Armor, is the author of *Red China's Fighting Hordes* and a frequent contributor to the JOURNAL. He is presently assigned to G3 in the Pentagon. MAJOR MARK M. BOATNER III, Infantry, is a third-generation Army man. He has just completed the course at the Command and General Staff College. COLONEL CHARLES W. MCCARTHY, Infantry, is on duty in Washington. BRIGADIER GENERAL DONALD ARMSTRONG, retired, is a contributing Editor of the JOURNAL. RICHARD GORDON MCCLOSKEY is another frequent contributor.

THE MONTH'S FILMS

CAPTAIN JACK F. McAHON

Assembly of an Airborne Unit, TF 31-1926 (18 minutes), shows four methods that are used to gather an airborne unit into an effective fighting force immediately after the jump.

* * *

You in Germany, AFIF 67 (31 minutes), explains the role of soldiers and their dependents in Germany in fostering international good will.

* * *

Motor Vehicle First Aid Kit, SFS 8-194 (10 minutes), exhibits and explains the contents of the kit and their various uses.

* * *

Terrain Analysis, TF 7-1972 (9 minutes), teaches soldiers the important points to remember about terrain analysis and shows how the infantry battalion commander uses them in combat. The film is in color.

* * *

Weapons of the Antiaircraft Artillery, TF 44-1929 (18 minutes), also a color film, shows quad .50s; twin 40mm guns on the light-tank chassis; the Skysweeper, 90-mm, and 120mm guns; and the Nike. Firing scenes and fire control centers are shown.

* * *

The Investigating Officer, TF 15-1946 (49 minutes), follows a pre-trial investigating officer from the time he is appointed until the time he makes his final recommendations. The film stresses the seriousness of the assignment and the care that is needed so that the rights of both the government and the suspect are served to the utmost.

* * *

The Fourth Man, MF 61-8414 (9 minutes), explains the role of the civilian employee of the Army in supporting the combat soldier. His work includes testing and designing equipment, handling pay, maintaining and guarding military installations, purchasing, and certain phases of instruction.

6 This Concerns You

ROTC AND RESERVE COMPONENT DUTY

IN peacetime the United States has always maintained a small standing army and a large pool of trained reserves. The standing army must garrison bases strategically located all over the world; provide a mobile, hard-hitting striking force capable of meeting any attack on our country; give us time to mobilize our reserves; and finally, but not by any means its least important task, it must train the reserve force and imbue it with a spirit of responsibility. Every citizen must realize the vital importance of his part in the defense of the nation. Well-trained, intelligent, dedicated Regular Army officers and career reservists can do much to build this spirit in the citizen soldier.

The magnitude of the transition from a small standing army to a well-trained military force of the proportions required in time of war can best be illustrated by looking at the figures of male officer strengths before and at the peak of World War II:

On 1 July 1940 there were 17,563 male officers on duty; of these 14,856 were Regulars and 2,707 were from reserve components.

On 31 July 1945 there were 776,716 male officers on duty; 15,145 were Regulars and 760,571 were ORC, NG and AUS.

THESE figures clearly show why we maintain large reserves. But reserves will be dependable only if we have an effective reserve program.

The Regular Army's job of developing our reserve force and providing a base for its expansion includes more than merely building reserve units. Our nation cannot win the economic battle against its enemies and still afford to maintain enough of its manpower in reserve units to meet the needs of an all-out war. This means that the authorized reserve units which are maintained in a reserve status must be able to organize large numbers of draftees into an effective, well-disciplined military force. The professional knowledge and experience necessary to accomplish this mission must be absorbed during weekly drill periods and summer-camp training. Accordingly, active-army advisers to reserve units must possess the inspirational leadership and broad basic knowledge that will give members of reserve units the qualifications to perform their wartime job.

THE task of active-army officers on duty with the reserve components is psychological as well as technical. They must maintain a friendly liaison between the active army and the reserve forces. These officers, by their energy, enthusiasm, and example, must stimulate the reservist's interest in a military career. They must develop a dedicated corps of reservists who will be able to play their part in the mobilization effort.

The ROTC instructor must meet the standards of the educational institution to which he is assigned. As a member of the faculty, he is expected to have had an education at least equal to that of graduates of the school. Since only about forty per cent of all officers have college degrees, this eliminates many officers from consideration for duty at the senior ROTC colleges and universities. Because many schools are denominational, religious preference is a frequent consideration. In addition to these nonmilitary requirements, ROTC officers must of course be well qualified professionally in their branch.

The instructor must be able to identify the sincere, able students who possess the qualities of character and leadership to become succesful officers. He must be able to win the confidence, respect, and admiration of these students. The impression he makes is extremely important. His conduct both on and off the campus, his ability as an instructor, and the leadership he displays in obtaining the participation of able men in the reserve program all contribute to the success or failure of his mission.

THE advisers to National Guard and Army Reserve units have equally grave responsibilities. Their mission picks up where the ROTC instructor's leaves off. They must capture the interest of the Reserve and National Guard officers and present them with a continuing challenge to improve their value to the Nation. The instructor must not only be highly competent; he must be tactful and deft in his guidance. He can expect the members of the component to develop no greater interest and enthusiasm than he himself displays. He must strive to have the unit commanders seek and prize his leadership.

Although the educational requirements for an adviser may not be so rigid as those for the RCTC instructor, the requirements for professional competence, exemplary conduct and teaching ability are just as exacting. The National Guard unit adviser must be acceptable to the Chief of the National Guard Bureau and the state adjutant general.

More than 4,000 officers must be assigned to reserve component duty to carry out the responsibilities to the reserve forces. Individuals are carefully selected by the appropriate Career Management branch. Officers are seldom selected until they have completed six years' service. While only one tour of duty with the reserve components is normal, particularly well-qualified officers may be called upon for a second tour if their career patterns will permit such assignments.

THE WORD FROM THE SCHOOLS

THE INFANTRY SCHOOL

National Guard OCS

TIS now has the responsibility for preparing, publishing, and distributing instructional material for National Guard State Officer Candidate Schools. This was done formerly by The Army General School. The Department of Non-Resident Instruction is presently revising the 212-hour course, which is given to selected National Guard enlisted men during weekends. Students are commissioned as second lieutenants in the Guard upon successful completion of the course. There are approximately 1,000 of these officer candidates.

TIS is also taking over the administration of the 10 series, Army Extension Courses, and physical training courses from the Army General School, Fort Riley, Kan., which was discontinued on 1 May. The 10 series will continue to be administered from Fort Riley until expanded facilities at Fort Benning have been completed.

Infantry Instructors' Conference

Infantry instructors assigned to the various service schools will attend the annual Infantry Instructors' Conference at TIS on 6-11 June. The meeting will be devoted to discussion of infantry training, tactical principles, organization and logistics, new developments and trends, weapons and equipment, and new infantry techniques. The conferees will receive instructional material from the Airborne-Army Aviation, Weapons, Communications, Tactical, and Staff Departments of TIS.

New Training Films

The Airborne Soldier is tentatively scheduled for distribution to units in the field by September. Others films, which will be ready at the same time, will cover the following subjects: assembly problems after fifth novice jump; personnel parachute malfunctions and entanglements; parachute landing falls; parachute training on the 34-foot tower; conduct of a parachutist in the aircraft; the swing landing trainer; and parachute recovery during novice training.

Basic Functioning—M1 Rifle. Part I: Trigger Housing Group, Firing Pin, Cartridge. TF 7-2124. 5 Minutes. This film demonstrates the action of these vital parts of the M1 rifle, and concludes with a series of questions and answers on the functioning of the rifle.

New Assistant Commandant

Brigadier General Paul L. Freeman, Jr., Deputy Director, J-3 Division, Hq. U. S. European Command, is slated to become Assistant Commandant of TIS to replace Brigadier General Carl F. Fritzsche, who is scheduled to leave in the near future for Okinawa.

THE ENGINEER SCHOOL

Nike Instruction

A new course for Nike crewmen was started at TES in May. It includes classroom instruction in the operation and first-echelon maintenance of engineer equipment used with the Nike and practical field exercises at local installations. Correct maintenance and operational procedures will be stressed. The principal items of engineer equipment in Nike installations are: air compressors with 3,500 psi capacity; 150-kw diesel generators; large hydraulically operated elevators; and frequency converters needed to raise 60-cycle commercial electric power to the higher cyclic rates used in the Nike installations.

Demolition Courses

"Explosives and Demolitions I and II" (10-15 and 30-2), two subcourses of TES extension course program, have been revised and are now ready for issue. Although the new courses contain no startling changes in doctrine or techniques, the instruction has been reorganized along more functional lines. An engineer who has taken the courses should be able to handle explosives and demolitions efficiently with a minimum amount of actual experience in the field.

"Explosives and Demolitions I" covers theory, types, and uses of explosives; and calculation, priming, firing, and placement of charges. "Explosives and Demolitions II" includes a review of basic principles, uses of explosives for construction, demolitions equipment and typical engineer small-unit demolition jobs.

Commanders' Conference

Engineer troop commanders from the major continental and oversea commands met at TES in April for a mutual exchange of views on problems of engineer training and operations arising from the combat and combat-support missions of engineer units.

THE SIGNAL SCHOOL

Training in Washington

Thirty-seven officer students at TSS recently completed a week's training course in Washington, D. C. The course was the first of a series planned to familiarize students with the organization, functions, and operations of the Office of the Chief Signal Officer in the Pentagon, and to acquaint them with military communications facilities at DA level.

The students heard key officers in the major divisions of the Office of the Chief Signal Officer outline the functions of each division. They also visited the Signal Corps Army Pictorial Service Laboratory in the Pentagon; research and development projects conducted by the Signal Corps at Fort Meade; the railway communications car operated by the White House Signal Corps Agency for the President; Army Security Agency headquarters in Arlington, Va.; and other important installations.

THE MONTH'S BOOKS

Honest and Provocative

UNITED STATES ARMY IN WORLD WAR II
The Women's Army Corps
By Mattie E. Treadwell
Office of Chief of Military History, 1955
841 Pages; Illustrated; Index; $6.25

Reviewed by
COLONEL FREDERICK BERNAYS WIENER

Here is the saga of the Wacs, presented in a superbly written history by a former member of the Director's staff. It is complete, honest, utterly frank—and very provocative.

For as the story unfolds, it becomes apparent that both the WAAC and its successor, the WAC, suffered about equally from slander and from stupidity.

The slander campaign that reached alarming proportions in mid-1943 is carefully analyzed; it was not fomented by Nazi propagandists, nor was it entirely the consequence of a few obscene columns written by a single notorious scribbler. Rather, it reflected the foul-minded attitude of the public generally, and more particularly of its male fighting men, including some with commissions. One's sense of shame is only somewhat lessened by learning that the several women's services in England were exposed to similar defamation, with as little factual foundation as here.

Most of the obstructions that the WAAC and WAC encountered within the Army seem to have originated in the upper reaches of the Army Service Forces empire. In the matter of proper clothing, adequate as to quantity, type, and design, the obstacles thrown up reflect a perverseness that could only have been the result of ingrained opposition to the entire idea of women serving in the Army. The fact that the uniform question was not settled until well into 1944, by personal decisions of the Chief of Staff on numerous details, is surely a revealing commentary on the quality of this facet of ASF administration.

Similarly, so long as the WAAC and WAC were layered under the ASF echelons, decisions were postponed and papers seeking War Department action were returned; not until the Office of the Director, WAC, was moved up to General Staff level as a part of G1 was it in a position to function properly. This, obviously, is another reflection on ASF, that great logistical domain that was always so much more successful in dealing with things than with people. Indeed, the needless frustrations encountered by Colonel Hobby were such that it is really a tremendous tribute to her devotion and patriotism that she refrained from throwing the entire business back into the faces of those who so consistently—and so unnecessarily—increased her difficulties.

Lessons for a future conflict are easily deducible from Colonel Treadway's text. First and foremost, not only morale among military women, but their mental health as well, is a matter of proper classification and assignment. Second, women should be administered by WAC officers, suitably selected, and given full powers of command and discipline. Third, effective utilization of women requires that WAC staff directors' recommendations be accorded the same respect as the recommendations of other special staff officers within their own specialties; Fourth, where the man-woman relationship between superior and subordinate breeds untoward favoritism, trouble results. Fifth, women in mental groups IV and V are virtually without military usefulness. Sixth, women's effectiveness falls when their working hours are too long and their environment is too unsuitable. (It was probably a mistake to have sent Wacs to the South Pacific.) There are other points, but those are the highlights.

The matter of the permanent peacetime WAC is touched on obliquely. Significantly enough, Colonel Hobby never favored it. Service in an emergency is one thing, a thirty-year military career for a woman quite another—particularly as the Wac then faces the crowning tragedy of her sex, namely, that whereas a man at forty-five is normally reaching his peak, a woman at that age is generally passing hers.

At the risk of repetition: This is splendid organizational history, and no officer who anticipates high command, which in the future inevitably will involve women as well as men, can afford not to read and study the present volume.

Hatching of a General

THE WEB OF VICTORY
By Earl Schenck Miers
Alfred A. Knopf, 1955
320 Pages; Illustrated; Maps; Index; $5.00

Reviewed by
COLONEL R. ERNEST DUPUY

This is two stories woven into one: the story of the most daring, brilliant, and probably least-known campaign in the annals of the United States Army, and the story of the man who planned it and carried it out—Ulysses S. Grant. Also, it falls squarely into the "About Time Department." It has always seemed remarkable to this reviewer that the multitudinous bibliography of the Civil War, the blazoning of the deeds of the Blue and the Gray, should lack any comprehensive analysis of the events leading up to the siege of Vicksburg.

Gettysburg we know. Antietam, Chancellorsville, Shiloh, Petersburg, Appomattox, and a host of other stirring and important names in the Civil War have been recalled in literary abundance. Vicksburg too we know—to the extent that Grant took it and thereby gave rise to a slang expression denoting celerity and completion.

But what historical facts do the names of Raymond, Jackson, Champion's Hill, and Black River evoke?

This reviewer writes with some feeling about this matter. From 1931 to 1933 he was privileged to attend the Command and General Staff School at Fort Leavenworth. There he learned much about war, including amphibious operations, river crossings, diversions, and the value of strategical and tactical surprise. But he does not remember hearing a single word of discussion of Grant's crossing of the Mississippi at Hard Times, or of the following twenty-day whirlwind campaign during which Grant, cutting loose from his line of communications, threw his army between Johnston at Jackson and Pemberton at Vicksburg to defeat them each in detail and then lock the latter up in his doomed stronghold. These things your reviewer had to learn for himself.

It is about this nub that Mr. Miers, with much sympathetic feeling and historical accuracy, has woven his story of the doings of a great general. Perhaps one could better say the hatching of a general, for the author reveals to us the man Grant, in all his intenseness of purpose, taking the step which led to his later selection as general in chief.

It is a very human Grant that Mr. Miers reveals, with a human frailty overridden by his virtues of tenacity, calmness, and simplicity. One senses the feeling of confidence this sometimes stolid leader aroused in his subordinates, down to the last man in the rear rank—the confidence that leadership alone can inspire.

One follows Grant, bedevilled, to be

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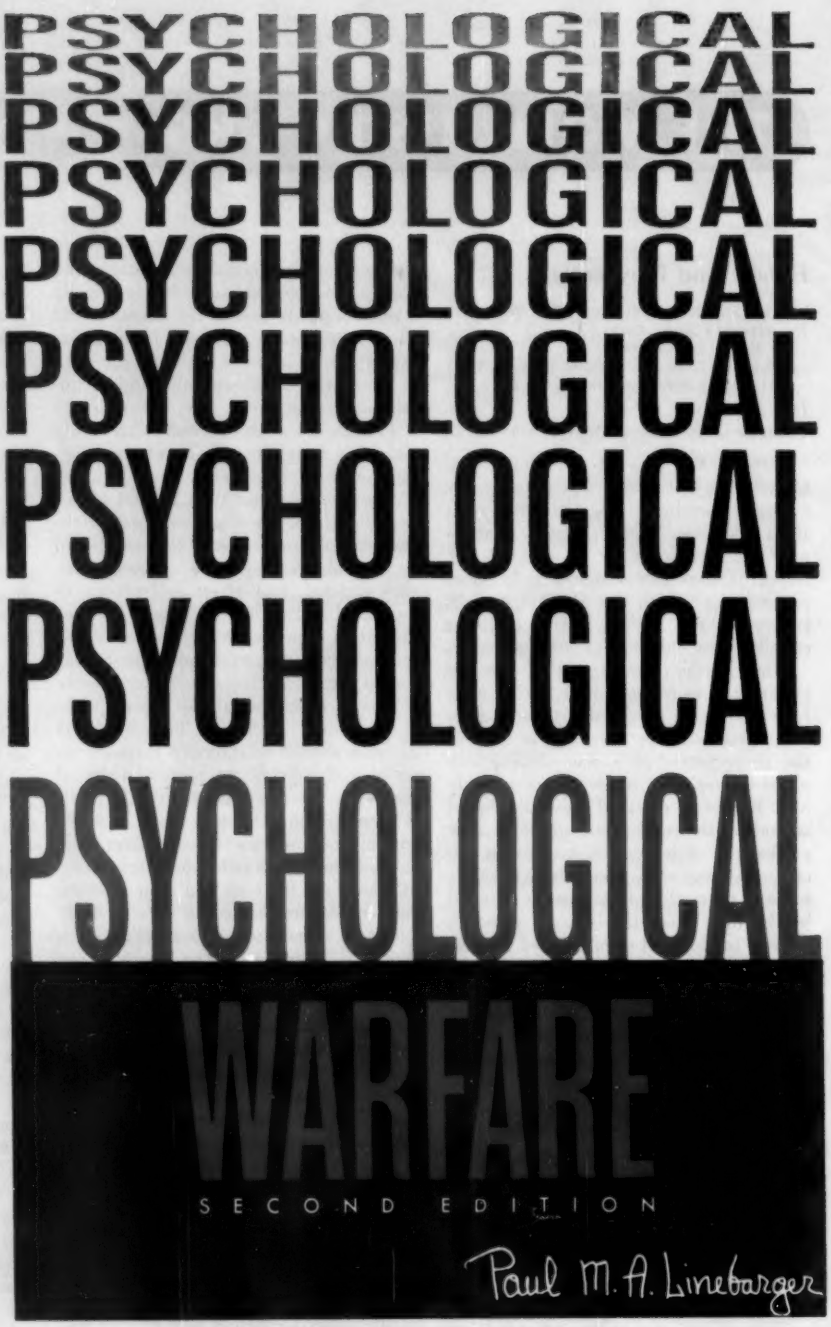

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sure, but outwardly unruffled, through the combined frustrations that Fate, a determined enemy in the field, and terrain, plus yapping politicians behind him, imposed. There is a villain in the piece too—the bewhiskered, conniving McClernand, who never lost an opportunity to thwart or besmirch the man who he felt stood in his own way to personal advancement.

And, of course, there is a *fidus Achates*, the fiery Sherman, himself emerging from the cocoon to spread wings of leadership, and proving his readiness and ability to become Grant's strong right arm in the days to come.

Back of it all in Washington one glimpses a brooding Lincoln searching for his general; hoping that in this man Grant he might find him, despite the invectives of press and politicians. So bright appeared the promise that Stanton would send out a personal emissary who should observe and report.

Grant's reception of Charles A. Dana at his headquarters was indeed revealing of his simplicity of character. Well knowing that Dana was "a chiel . . . takin' notes," Grant welcomed him into his highest councils as an observer, kept him close beside him, afforded him every opportunity. Fortunately, Dana, newspaperman and trained observer, was also a man of character who could and did give unbiased reports. There can be no doubt that Grant's future was influenced for the better by Dana's reports. Our author deftly weaves Dana's views on Grant and his generals into the story.

The author is to be congratulated on a magnificent drama as well as an excellent and badly needed appreciation of the Vicksburg campaign in its entirety. One might hope that the reader of this book will be led to delve further into the story of Grierson's raid—the important diversion launched by Grant, and lately told in *Grierson's Raid*, by D. Alexander Brown, which was reviewed in the February 1955 JOURNAL.

Two criticisms are necessary. In the first place, the three maps are entirely inadequate. Second, the one brief mention of Nathaniel Lyon on page 8 is carpingly unjust to the memory of the man who held Missouri in the Union by sheer initiative and leadership.

This book is heartily recommended to all students of leadership in war.

Man of Integrity

CARNOT
By Major S. J. Watson
The Bodley Head, 1954
225 Pages; Illustrated; Index; $3.50

Reviewed by
MAJOR MARK M. BOATNER III

"Glory does not come until the very end of careers," wrote Napoleon in 1800 to a man he was trying to keep in his service as Minister of War. He was promising more glory to a man who had already merited enough for three men. But the ex-engineer officer who had been the Revolution's "Organizer of Victory," who had appointed Napoleon to his first independent command, refused to serve a leader who he felt was more interested in personal aggrandizement than in the country.

The fact that this is the first comprehensive biography of Carnot to appear in English is further testimony that true greatness must often wait long for the recognition it deserves.

Who was this man Carnot?

Carnot began his career as an inconspicuous officer of the King's engineers. He had completed a little more than ten years' service when in 1784 he won a medal for an essay on Vauban, the great exponent of siege warfare. This put him right in the middle of a controversy raging at the time on the subject of siegecraft and fortification. Unfortunately for his immediate career, it got him in on the side opposing the official "doctrine" of his corps.

While still pressing for much-needed army reforms, Carnot became interested in the revolutionary clubs that were springing into existence. In accordance with the peculiar situation of the times, he was able to enter politics and was elected People's Commissioner of the district in which he was stationed.

Although his complete sincerity and honesty were political handicaps, his military qualifications made him indispensable to a government on which foreign enemies were converging. In 1794, as a captain of engineers, Carnot was successfully controlling the operations of twelve armies in the field.

Traveling ceaselessly throughout France, he accomplished much-needed army reforms. Capitalizing on the revolutionary ardor of the French troops that made up for their lack of professional competence, he urged his generals to audacity: "*Soyez attaquants, sans cesse attaquants*!" The professionals were swept away by the amateurs who just wouldn't stop attacking. At Wattignies, Carnot personally led the attack in civilian clothes.

But it was a professional eye that showed Carnot the need for an offensive campaign in Italy and that picked the man to execute it. "Who is this little blusterer who boasts that he will sweep away the Austrians in less than six weeks?" wrote an old colonel. "He is a very forceful little man," answered Carnot, "and he is quite capable of keeping his word."

The little blusterer, needless to say, was Bonaparte. It took him less than twenty days to defeat the Austrians at Montenotte and to force an armistice on the Sardinians.

In a field wide open for self-seeking, Carnot remained a man of complete in-

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Reviewers say:

". . . For anybody who has ever served in war, for anybody who will ever have to serve in war." George Barrett, in *New York Times Sunday Book Review.*

". . . Of considerable professional interest to any military student and of particular interest to those who were there." Maj. J. R. Stevens, in *Marine Corps Gazette.*

"The ground forces would do well to set this book up as required reading." Army Times' *The American Daily.*

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A Selected Check List of the Month's Books

This run-down of some of the books received for review during the month preceding our deadline is to give our readers who like to follow current literature a monthly check list of the most important, useful and potentially popular books. Full reviews of some of these books will appear in this or subsequent issues. Any of these titles may be purchased through the Combat Forces Book Service. See page 64 for order coupon and a complete listing of Selected Books for Military Readers.

AROUND THE U.S.A. IN 1,000 PICTURES. Edited by A. Milton Runyon and Vilma F. Bergane. Doubleday & Company, 1955. 384 Pages; Index; $5.00. A selection of pictures from all over the United States which does not constitute a travelogue but merely a sampling of America's vast panorama.

ATOMIC WEAPONS AND ARMIES. By Lt. Col. F. O. Miksche. Frederick A. Praeger, 1955. 222 Pages; Index; $5.00. A famous Czechoslovakian military writer tries his hand on the complications of atomic weapons down to divisional level.

CAVES OF BIAK. By Harold Riegelman. The Dial Press, Inc., 1955. 292 Pages; Maps; $4.00. The Republican candidate for Mayor of New York in 1953 writes of his experiences in the Southwest Pacific as Chemical Officer of I Corps. There is little in it for the professional soldier but Reserve officers may read it with a great sense of personal satisfaction. It tells well the story of the citizen soldier and his devotion to duty.

THE CRECY WAR: A Military History of the Hundred Years War from 1337 to the Peace of Bretigny, 1360. By Lt. Col. Alfred H. Burne. Oxford University Press, 1955. 366 Pages; Illustrated; Maps; Index; $7.00. One of England's most scholarly (but not stuffy) military historians offers a study of a period of military history little known by most Americans. More military history written in this manner would make scholars of some of our less-well-read officers.

DEPENDENT BAGGAGE. By Marie Di Mario Wann. The Macmillan Company, 1955. 248 Pages; $3.50. The early occupation of Germany from the viewpoint of the wife of a civilian official. Personal, down-to-earth, but in final analysis primarily a combination of gripes about German nastiness and official stupidity.

FREEDOM OF THE PRESS. By William L. Chenery. Harcourt, Brace & Co., 1955. 256 Pages; Index; $3.75. Some historical and current examples of the never-ending fight against censorship. Better books on the subject have been written but this is at present the most current text and it is undoubtedly valuable for those who are interested in the problem.

THE FRENCH BROAD. By Wilma Dykeman; Illustrated by Douglas Gorsline. Rinehart & Company, Inc., 1955. 371 Pages; $5.00. This, the forty-ninth of the "Rivers of America" series, is an unusually intimate story of a little known river that flows between the Blue Ridge and the Great Smokies.

THE GREAT RECONNAISSANCE. By Edward S. Wallace. Little, Brown & Co., 1955. 288 Pages; Index; $5.00. The story of the exploration, survey and mapping of the American boundary with Mexico after 1848. Written with much anecdote and humor, it is a very pleasant addition to the history of the Western portion of the United States.

HANDBOOK OF SELF-DEFENSE: In Pictures and Text. By John Martone. Greenberg, Publisher, 1955, 111 Pages; $2.95. We haven't seen one of these in several years—during and shortly after the war there was quite a rash of books on this subject. Considered favorably by General Howard and Colonel Bryant of our Military Police Corps.

HEADQUARTERS. By Quentin Reynolds. Harper & Brothers, 1955. 339 Pages; $3.95. A famous writer tells the story of the most decorated active New York policeman, Inspector Frank Phillips, Commanding Officer of the Detective Bureau. Here is good writing based on exciting action and it will explain how a big-city Police Department operates.

THE LONELY SKY. By William Bridgeman with Jacqueline Hazard. Henry Holt & Co., 1955. 316 Pages; Illustrated; $3.95. The story of one of our more famous civilian test pilots—which still doesn't quite answer the problem of why a man chooses this particularly hazardous occupation. Aviation enthusiasts will be particularly impressed because a large part of the book covers his testing of the Skyrocket.

OFFICIAL HISTORY OF THE INDIAN ARMED FORCES IN THE SECOND WORLD WAR, 1939-45; THE ARAKAN OPERATIONS, 1942-45. By Lt. Col. N. N. Madan. Combined Inter-Services Historical Section, India and Pakistan, 1955. 371 Pages; Illustrated; Maps; Index. The Indian and Pakistan governments follow the British lead in writing recent military history in a frank and open manner. Here is the complete story of a bitter campaign written with official coldness but with devotion in the face of adversity shining through.

AN OUTLINE OF ATOMIC PHYSICS. By Oswald H. Blackwood, Thomas H. Osgood and Arthur E. Ruark. John Wiley & Sons, Inc., 1955. 501 Pages; Illustrated; Index; $7.50. The third edition of a standard work designed for readers who have an elementary knowledge of physics. Over 35% of it is new material.

REALISTIC COMBAT TRAINING AND HOW TO CONDUCT IT. By Lt. Col. Robert B. Rigg. Military Service Publishing Company, 1955. 239 Pages; Illustrated; Index; $3.50 hardbound, $2.75 paperbound. A considerable expansion of Colonel Rigg's material which appeared in the ARMY COMBAT FORCES JOURNAL. Much good material though somewhat unattractively presented. Valuable to 3s and COs.

THE ROCKET PIONEERS ON THE ROAD TO SPACE. By Beryl Williams and Samuel Epstein. Julian Messner, Inc., 1955. 241 Pages; Illustrated; Index; $3.75. A history of rocketry which offers a quick survey of what is rapidly becoming a field of great importance; in layman's language.

SATELLITE GENERALS: A Study of Military Elites in the Soviet Sphere. By Ithiel de Sola Pool. Hoover Institute Studies, Series B, No. 5. Stanford University Press, 1955. 165 Pages; $1.75. A study of the sources and the future of leadership of the satellite armies. It is interesting to note that the author does not believe these forces will be integrated into the Russian Army. Scholarly and surprisingly complete.

SERVOMECHANISMS AND REGULATING SYSTEM DESIGN, Vol. II. By Harold Chestnut and Robert W. Mayer. John Wiley & Sons, Inc., 1955. 384 Pages; Illustrated; Index; $8.50. A technical book for designers. Builds on the fundamentals outlined in Volume I. Of particular interest to our Antiaircraft and Ordnance members.

THE SILENT CONTINENT. By William H. Kerns, Jr. and Beverley Britton. Harper & Brothers, 1955. 237 Pages; $3.50. "The discovery and exploration of Antarctica—told in terms of the adventures and heroism of the great explorers."

SOVIET MILITARY LAW AND ADMINISTRATION. By Harold J. Berman and Miroslav Kerner. Harvard University Press, 1955. 208 Pages; Index; $4.00. A book that is guaranteed to make American soldiers much more satisfied with the Uniform Code of Military Justice. A good example of how American soldiers would not care to be governed.

U. S. MARINE OPERATIONS IN KOREA, Vol. I, The Pusan Perimeter. By Lynn Montross and Captain Nicholas A. Canzona, USMC. Historical Branch, United States Marine Corps, 1955. 271 Pages; Illustrated; Index; $2.00. The first of four volumes on the Marines in the Korean War. Short but extremely well illustrated. It is down to company and platoon level in some actions. Better reading than most official histories.

THE URANIUM PROSPECTOR'S GUIDE. By Thomas J. Ballard and Quentin E. Conklin. Harper & Brothers, 1955. 251 Pages; Illustrated; Index; $3.50. It appears that locating a fortune in uranium requires more than a burro and a pick. For those located within striking distance of the Colorado plateau and who know a little about geology or mining law this book would be extremely valuable. Parts of it require study rather than reading.

WALL STREET: MEN AND MONEY. By Martin Mayer. Harper & Brothers, 1955. 274 Pages; Index; $3.50. A layman's explanation, chatty and exceptionally understandable, of what makes the wheels of finance go around. Recommended highly for those who dabble in the stock market.

WHEELS WEST: The Story of the Donner Party. By Homer Croy. Hastings House, 1955. 242 Pages; Index; $3.75. Another view of one of the West's best-known epics. A grim story but the author keeps it far above the level of soap opera.

tegrity. When he realized the true nature of Napoleon's personal ambition, Carnot refused to serve him any longer. "You have to choose for your place in history to be either a Cromwell or a Washington," Carnot told Napoleon candidly. "If you make a bad choice, you will be heading for a great fall."

Major Watson was first attracted to Carnot while at Oxford. Ten years later, as a Regular officer of the Royal Engineers attending the Staff College at Camberley, he was amazed to find that no comprehensive biography of Carnot existed in English. Combining the military philosophy of direct action with the admirable literary tradition of the British Army, Major Watson wrote the book in England, finished correcting the proofs while serving in Korea, and saw it published just before leaving England to attend our own Command and General Staff College at Fort Leavenworth.

Long-Needed Facts

YOUR ASSIGNMENT OVERSEAS: A Handbook for the Serviceman and His Family
By Major Vernon Pizer and Capt. Perry H. Davis II
W. W. Norton & Company, 1955
291 Pages; $3.50

Reviewed by
LT. COL. ROBERT B. RIGG

From the quonset quarters in Golcuk, Turkey, to an apartment in Vienna, this lively text will tell you what to take and what to expect in almost every part of the globe. No military family should be without this book, which will more than repay its dollar cost on the next overseas move—and make moving more efficient and economical. It is an insurance policy on your household goods because it guides you in the correct disposition of personal belongings as related to various foreign posts manned by the armed forces.

The authors have described foreign posts in terms of living, and not just with cold statistics. Sidi Slimane, Naples, Salonika, Berlin, Istanbul, Japan, Germany, Puerto Rico, Alaska, Okinawa, Spain, Labrador, Hawaii, and many other points of modern military service are discussed in what to bring, cost of servants, facilities or lack of them, social life, schools, quarters, and so on. Facts about automobiles are plentiful. You do not take one to Bermuda, a sturdy jalopy is all you will need in the Azores, it is well (and legal) to sell your car in the Philippines, and the roads of Eritrea will be rough and few—but you can drive to Addis Ababa if you are adventurous. There are helpful guides on insurance.

Here is your way out of the electrical-appliance maze. If your wife has blown a fuse and burned out a fine 110-volt appliance on a foreign 220-volt circuit, she will never do so again if she reads this fact-packed volume.

You may feel that your own experience qualifies you to prepare your family for any future station, but after you have read this book you will think differently. While Major Pizer and Captain Davis have lived in eight houses, nine apartments, countless hotel rooms, and one trailer, in their combined twenty-six years of service—many military families can say that this is anything but a record. However, the authors know their subject beyond the thirty-six foreign countries they have lived in, and they have gathered data that make them authorities in facts you can use.

Military attaché posts are not covered except in nations where there are U.S. military stations and missions. Iran and Yugoslavia might have been included, considering our advisory efforts there. Indochina is omitted, but Formosa is well covered.

In future editions the authors might well include some illustrations.

No single book exists which will match this one in practical facts for the moving military family. Non-military travelers can benefit by this text also. A handbook of this nature has been needed for a long time.

Frustration in High Places

ADMIRAL AMBASSADOR TO RUSSIA
By Adm. William H. Standley and Rear Adm. Arthur A. Ageton
Henry Regnery Company, 1955
533 Pages; Index; $6.00

Reviewed by
COLONEL CHARLES W. MCCARTHY

After reading this book one wonders why the title was not stated as a query. Admiral Standley never knew whether he had been sent as Ambassador to Moscow (that is, personal representative of the Chief of State) or as a figurehead who would not object to the Roosevelt custom of by-passing which prevailed not only in the diplomatic but in all the branches of the Executive under FDR.

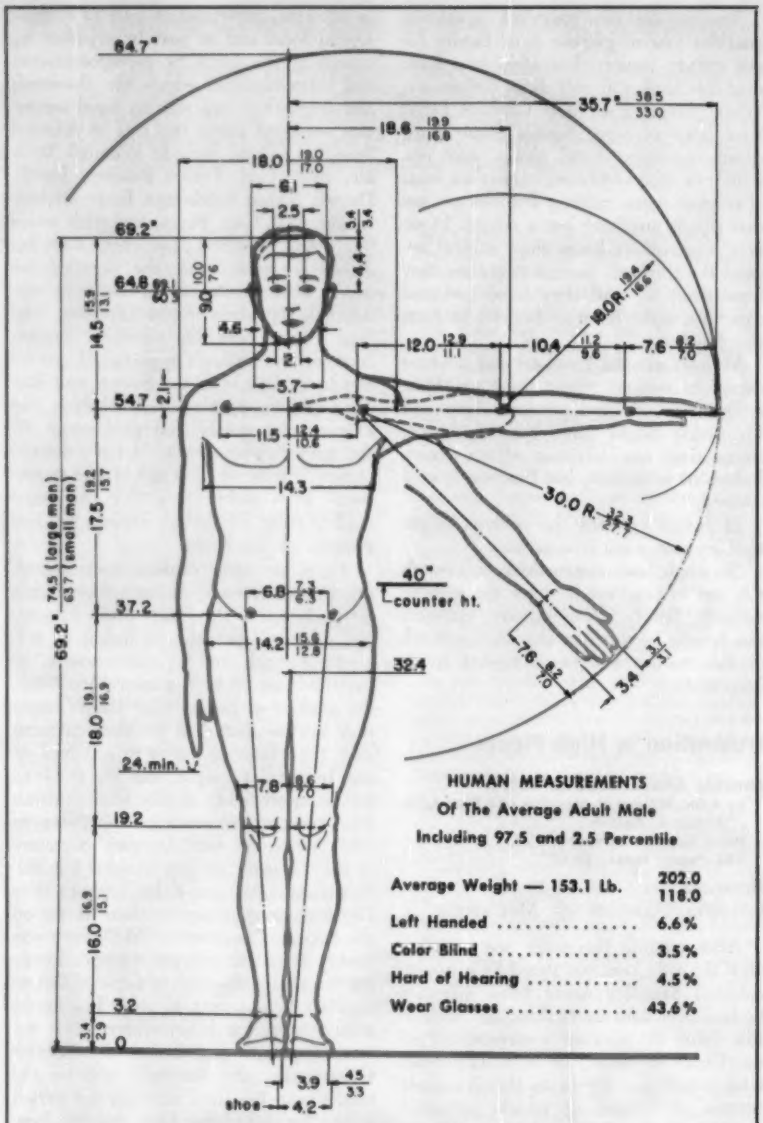
One wonders why the delay in publishing an account of experiences which were terminated more than ten years ago. It could be that loyalty to the memory of the late President who was such a staunch supporter of the naval service deterred the old sailor. Maybe it took a ten-year cooling-off period for Admiral Standley before his views of the treatment he received could be committed to paper without having it burst into flame. The phrase most often repeated is "Of course, I was not informed." One develops a sympathy for the old man who received churlish treatment from the Russians and childish treatment from his own people.

The first hundred pages of the book are devoted to the author's naval career and the build-up for his appointment as Ambassador. Then there follows a rambling account of the eighteen months spent in Moscow, presented in part in chronological form and in part by separate accounts of the visits by plenipotentiaries and extraordinaries whom Mr. Roosevelt had dispatched and who in rapid succession marched across the toes of Admiral Standley. These include Wendell Willkie, Brig. Gen. Follett Bradley, Joe E. Davies, Arthur Sulzberger, Eddie Rickenbacker, Maj. Gen. Burns, and what seems like a host of others. The chronology becomes confused with the detailed accounts of the visits, which results in considerable repetition and backtracking. The book closes with an excellent chapter covering the author's appraisal of our errors in dealing with the Soviets and stating a philosophy for future dealings and a posture to satisfy that philosophy. In the author's own words, "I have derived certain lessons which I would like to present." It is unfortunate that one must read to page 520 before finding the real purpose of the book.

There are many evident errors regarding personages and places which might be attributed to the frailty of an 83-year-old memory, but the co-author is still young enough and a contemporary, so that he must be held responsible. While the student of history who knows better may not be disturbed by the statement that Sir Hastings Ismay was Chief of the Imperial General Staff in 1941 (a job he never held) or that John Sullivan was Assistant Secretary of the Navy in 1941 when he was Assistant Secretary of the Treasury, or that General Joe McNarney was Admiral Kelly Turner's War Department counterpart when he sat on the Roberts Commission (McNarney was never Turner's opposite except during the temporary absences of General Gerow and left Washington to go to London as military observer in September 1941, not returning until just before the Roberts Commission was formed), still to the reader who has lived through the period it is a bit disturbing. One wonders how much erroneous reporting is included in the account of the Moscow activities, a scene that not all were privileged to observe.

If only the hurt feelings did not stick out from every page, some sections of the book would be fine reading and would constitute an excellent contribution to historical literature. In this regard, the accounts of the problem of the Polish refugees in Russia and the Katyn Forest episode are especially noteworthy. It is unfortunate that the Admiral did not write in more detail of the Katyn Forest massacre, particularly in view of his testimony before the Congressional committee. The accounts of the visits of Wendell Willkie and Joe E. Davies are interesting, and to this reviewer's knowledge are reported here for the first time by a witness to these events.

Like most of our military leaders, Ad-



HUMAN MEASUREMENTS
Of The Average Adult Male
Including 97.5 and 2.5 Percentile

Average Weight — 153.1 Lb.	202.0 / 116.0
Left Handed	6.6%
Color Blind	3.5%
Hard of Hearing	4.5%
Wear Glasses	43.6%

PORTRAIT OF JOE

This is Joe—the typical American man. He's the hero of Henry Dreyfuss' new book, *Designing for People*. Joe's dimensions help determine the size and shape of many of the everyday things that you use. Dreyfuss is an industrial designer who believes that machines should be built around the people who use them. He makes Joe his starting point when he has to decide how far buttons and levers can be placed away from the central controls of a machine, or the best size for an Army helmet.

Many of Dreyfuss' designs have been aimed at improving military efficiency. During World War II he redesigned the driver's compartment of a tank. Drivers had been becoming unduly fatigued in traveling over rough terrain in combat. Dreyfuss found that this was due to the cramped position in which they were forced to sit. With the help of Joe, he was able to design a more comfortable, and therefore more efficient, compartment. Controls were placed within easy reach and given different shapes so that they were easily identifiable in the dim interior.

A study of Joe's anthropometry reveals many interesting facts about ourselves. Likewise with Josephine, who is absent, this being a magazine for men.

miral Standley was never taken in by the Russians or Communism. From the beginning he recognized this "strange Alliance" for what it really was: military opportunity. He accepted the appointment to Moscow because he looked on it as a quasi-military task, only to find that even his small military responsibilities had to be shared with others. He came close to greatness when in blunt sailor fashion he tried to force the Kremlin to advise the Russian people of the magnitude of Lend-Lease and Russian relief, and risked much by accusing Stalin at a press conference of withholding this information from the people. But in the end, old Navy discipline prevailed and Russian censorship combined with news-handling by OWI softened the impact on the folk back home.

In the foreword the author reminds us that "Nations, like people, have a long memory where insult or injury is concerned." There is ample evidence here that this human weakness still prevails.

In a Realistic World

THE ADULT'S AMERICAN HISTORY: Pragmatic Democracy in Action
By Leland D. Baldwin
Richard R. Smith, Publisher, Inc., 1955
861 Pages; Index; Illustrated; $8.00

Reviewed by
BRIG. GEN. DONALD ARMSTRONG

A serious deficiency in American education was discovered in the late war. Like many others who were closely associated in military training with the youth of this country, I found among them a disheartening ignorance of American history and of the meaning of the American experiment. Few could say why Lincoln had called our democracy "the last, best hope of earth." Few realized why Dr. Baldwin is justified in opening this history of our country with these words: "The United States is built upon the splendid faith that, given time and opportunity, the masses can become aristocrats in the best sense of that word. If we fail, all that can be said is that at least it was worth trying once in history."

Dr. Baldwin's history is therefore particularly gratifying because it emphasizes the ideal of democracy in the United States. In carrying out his purpose to show pragmatic democracy in action, he accounts for the unique role of the United States in history in advancing human dignity and freedom. If Dr. Baldwin can be said to have a frame of reference in writing his history, it is the American concept of democracy. His own Credo for Democracy serves as a prologue and in it he defines the term. On a single page he epitomizes in thoughtful and well-chosen words the purpose, method, rights and duties of the believer in Democracy. It's a good beginning for an American history. It's an extremely useful reminder

for the sophisticated as well as for the unlettered.

Although the word "adult" is used in the title, the reading level of this book requires no more than a high-school education. Certainly the more mature the mind, the greater will be the value of this history to the reader. It is, however, extremely readable, in fact enjoyable; and an unusually large number of well-drawn maps, charts, illustrations, and cartoons are visual aids of constant use and value.

Who Worries about Reds?

COMMUNISM, CONFORMITY, AND CIVIL LIBERTIES
By Samuel A. Stouffer
Doubleday & Company, 1955
279 Pages; Appendixes; $4.00

Reviewed by
RICHARD GORDON MCCLOSKEY

Here is an attempt to find out what 5,000 average citizens and 1,500 local community leaders think about Communism, civil liberties, and the right to have an opinion different from the neighbors'.

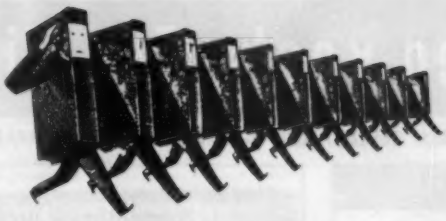
The Gallup Poll and the National Opinion Research Center of Chicago University made the survey. The results may surprise, shock, delight, dismay you —or bore you—depending on what your opinion is about your neighbors' opinions.

Without going into a welter of ifs, ands, and buts about the validity of the questions posed by the pollsters, the general results of the survey show:

Less than one per cent of the American people are even remotely worried about the threat of Communism in the United States, or about their civil liberties. "I don't worry about things like politics, because we have people who are paid to do that kind of worrying." What 80 per cent of Americans do worry about are health and finances, not Reds under the beds.

Generally, the better-educated and the younger generation are more tolerant than the less-educated and older generation. Women and rural residents are less tolerant than men and city folk. Community leaders—mayors, the president of the local PTA council, Community Chest chairmen, labor-union heads, American Legion commanders, and so on—are encouragingly better informed and more tolerant than the average citizen. This fact, I think, is the most important one to come out of the survey. If our leadership is responsible, the average citizen's tendency to let John worry about it is an unfortunate one, but perhaps not tragic. If, however, the citizen's indifference to national and world affairs leads him to vote for knaves and demagogues, then letting Joe do it could lead to stark tragedy.

There is much of value to mull over in this survey. I don't suggest you rush out and buy a copy, but put your name on the list in the library to get it. It makes very interesting reading.



Pass In Review

During World War II, Ernest Hemingway edited a collection of war stories that we judged to be the really basic book of war literature. Unfortunately, the book was allowed to go out of print right after the war and is only now being reissued in a clothbound edition. It's called *Men at War* ($4.95) and contains 1,100 pages of the finest contributions to military literature. It includes portions of classics such as Stephen Crane's *The Red Badge of Courage; Horatius at the Bridge; The Trojan Horse;* and hundred of others from the Bible through Dunkirk in World War II. We're willing to stick our necks way out on this one, and recommend it highly.

Lieutenant Colonel Robert B. Rigg is well known to JOURNAL readers for his frequent contributions. He's been plugging for greater realism in training —which he discussed in part in his article, "Blow Up Your Commander," in the December 1953 issue of the The JOURNAL. He's compiled his thoughts on this subject in book form, aptly titled *Realistic Combat Training and How to Conduct It* (cloth $3.50, paper $2.75). It will be reviewed in detail in these pages, but for those who know Rigg's work this advance announcement will suffice.

The JOURNAL has also served as the advance vehicle for another book. You will recall the popular series we ran a year ago entitled "Around the Bases," dealing with what to expect in various overseas areas. These articles were by-lined "Marco Polo"—who can now be unveiled as Captain Perry H. Davis. Captain Davis has teamed with Major Vernon Pizer to bring out *Your Assignment Overseas* ($5.00). This useful book has answers to all the questions that come to mind when overseas orders are in the offing.

One new arrival this month promises to be of interest: *Atomic Weapons and Armies,* by Lt. Col. F. O. Miksche ($5.00). Miksche, author of several military semi-classics, served with the Fighting French Forces during World War II and put in some time at SHAEF. For the last five years he's been on the faculty of the Staff College of the Portuguese Army. In this book, he presents his views on the effects of atomic warfare at the division and army level.

Clay Blair, Jr., *Time's* enterprising representative at the Pentagon, has come out with a new book that sounds intriguing. It's called *Beyond Courage* ($3.50) and describes four survival and escape experiences from the Korean war. These heroic episodes were taken from actual case histories in Air Force records and rank right at the top in initiative, endurance, and courage.

Doubleday & Company is engaged in a most interesting publishing venture which it calls "Mainstream of America Series." It has contracted with some of the Nation's outstanding historians to prepare a series of books on American history written in highly readable, popular style. The three we have read so far have been excellent: Stewart Holbrook's *Age of the Moguls,* Paul Wellman's *Glory, God and Gold,* and most recently an unusually fine account of our Revolutionary War by Bruce Lancaster called *From Lexington to Liberty,* which Lynn Montross reviewed so favorably in last month's JOURNAL. The fourth is just coming out. It is by Clifford Dowdy and is entitled *The Land They Fought For* ($6.00). It deals with the Civil War South and will be followed by a companion volume by Bruce Catton on the Civil War North. Naturally, Lee and Jackson are the heroes of this account, and Lincoln is somewhat the villain.

Ken Giniger, former JOURNAL contributor, who is now vice president of Hawthorn Books, has just edited *The Compact Treasury of Inspiration* ($3.95) which is one of the finest things of its kind we've seen. He's included contributions from the Bible, all religious denominations, and such stirring essays as Conwell's "Acres of Diamonds" and Hubbard's "Message to Garcia." It's really an excellent gift item.

The prolific Lynn Montross, whom we mentioned earlier, is party to another bit of book news this month. With Captain Nicholas A. Canzona, USMC, he has written the first volume in the history of U. S. Marine Corps operations in Korea. This volume, *The Pusan Perimeter* ($2.00), is the first of four volumes which will describe Marine operations in the Korean conflict.

—R.F.C.

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